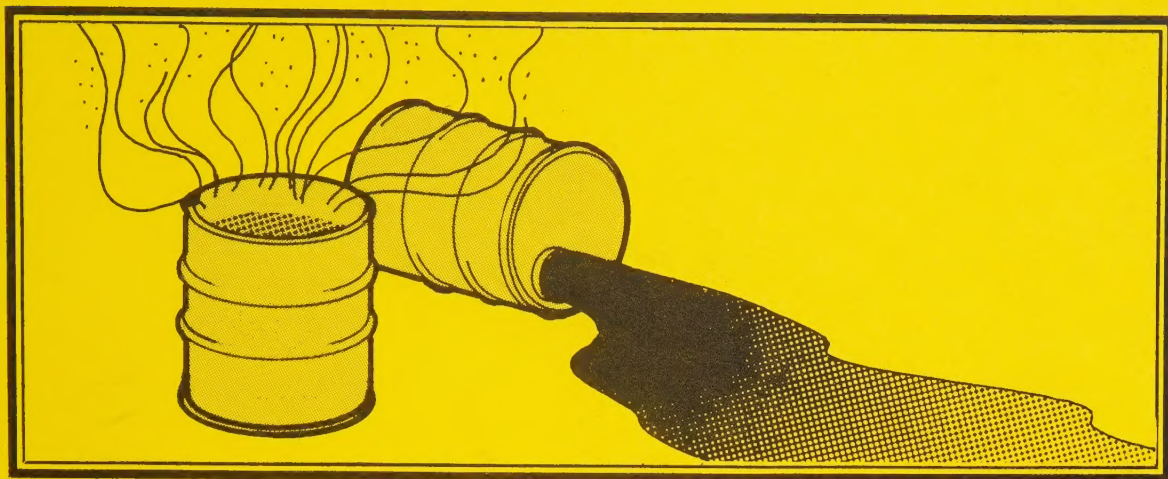


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San Francisco Bay Area

Hazardous Spill Prevention and Response Plan

VOLUME 1.

Issues and Recommendations

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HAZARDOUS SPILL PREVENTION AND RESPONSE PLAN

VOLUME 1

ISSUES AND RECOMMENDATIONS

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**THE SAN FRANCISCO BAY AREA
SPILL PREVENTION AND RESPONSE PLAN**

VOLUME 1
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CHAPTER I

EXECUTIVE SUMMARY

This plan is designed to provide guidance to local San Francisco Bay Area governments faced with growing responsibilities and concerns relating to the presence of hazardous materials within their jurisdictions. Communities do not stand alone in the problems they face on this issue; spill response typically involves numerous agencies and jurisdictions. At a time of limited resources, most local governments cannot afford to work independently, nor can they afford not to be prepared. This plan is therefore intended to provide direction and promote regional cooperation and consistency. It provides an interface between the State Hazardous Material Incident Contingent Plan and local operational plans.

The plan identifies problems and issues related to hazardous spill prevention and response. It then presents recommendations, guidelines and models to solve these problems.

The plan is presented in three separate volumes. Volume 1 presents the "Issues and recommendations". Support documents are presented in separate reports: Volume 2, "Risk Assessment" presents detailed maps and methodology developed during the risk assessment phase; and Volume 3, "Technical Support Documents" provides additional discussions and background material on each section of the plan.

The plan was developed under the guidance of a 45-member Task Force that included representatives from a cross section of local, state and federal agencies and industries directly involved with the management of hazardous materials. In addition, four supporting subcommittees focused on risk assessment, prevention, response, and training. These subcommittees collected and assessed information on existing programs, addressed specific issues relating to their particular disciplines, and made recommendations on elements for a regional spill program. The Task Force reviewed and adopted policies and plan elements, in addition to looking at liability and fiscal concerns. The following discussion summarizes the major findings and areas addressed in the plan.

Risk Assessment

A regional risk assessment was conducted to provide a framework for developing prevention and response programs. This also provides a baseline for communities to conduct more intensive investigations of their local jurisdictions. Risk was determined through an evaluation of hazardous material concentration (selected industrial sites), principal transportation routes, hazardous material transfer points, previous spill records, population and projected growth, and the location of vulnerable water resources. This assessment indicated that the critical regions generally form a strip bordering the south and central bay. The most critical areas consist of east San Francisco extending into San Mateo County, the Silicon Valley area of Santa Clara County, the east bay extending from Alameda through Rodeo, and a small strip encompassing Martinez and Concord extending along the shoreline to Antioch. The north bay counties generally have a much lower risk from hazardous material spills, although they are not precluded from experiencing a significant incident. In terms of spill data, there are approximately two spills reported daily, on the average, in the Bay Area.

Prevention

A sample survey was carried out on general prevention programs conducted by local government. This provided a baseline of typical activities undertaken by local fire departments. It was found that local fire department prevention programs can be expanded to include hazardous materials. However, few local agencies have done so to a significant extent. Next, a more detailed analysis was made on the various components of a prevention program. This led to a series of recommendation on the following key elements of a prevention program.

- o minimum prevention programs at fixed and transfer facilities
- o disclosure ordinances
- o comprehensive hazmat model code
- o zoning
- o enforcement of transportation regulations
- o routing
- o rail and pipeline safety
- o civil injunction

Response

A look at existing response capabilities showed that state and federal resources are limited and not designed to respond to all the hazardous material incidents occurring in the Bay Area. Given the risks and responsibilities facing local governments, it was evident that most jurisdictions are not adequately prepared to respond. However, if proposed and existing local government hazardous material incident response (HAZMAT) teams become fully developed, regional response capabilities in the highest risk areas will be sufficient. In addition, private response capabilities are available and play a vital role in local response plans. Recommendations and guidelines include:

- o mutual response objectives
- o criteria for evaluating local spill plans
- o designation of scene manager and adoption of an incident command system
- o location of HAZMAT teams with specified responsibilities and goals
- o multi-jurisdictional shared use agreements for HAZMAT teams
- o development of tools for defining evacuation areas during toxic gas releases
- o improvements in notification and reporting
- o correction of communications problems
- o public information programs

Training

Hazardous material training currently received by personnel in the public and private sectors was identified and training need characterized. Overall, training courses are often inaccessible and of variable quality. There are no generally accepted standards or criteria for hazardous materials training requirements, nor a focal point for providing such training. An insufficient number of prevention and response personnel in

public agencies, including medical personnel, are adequately trained to deal with hazardous materials. Training received by private companies has been difficult to assess, but appears to be widely variable in both quantity and quality. Inadequate training for public agencies' prevention staff, to the extent that it exists, is a reflection of the low priority given to prevention activities in general. The plan presents a recommended model and outline of training requirements for public response agencies, as well as an outline of training needs for private industry. Finally, a regional training system for the Bay Area is proposed.

Liability

The plan addresses liability for hazardous material spills and spill response. The question of liability is complex and highly dependent on the specific facts of the situation. What does become clear is that local governments do have a responsibility to respond to hazardous material spills within their jurisdictions and may be liable for failure to do so. Therefore, the plan calls upon local governments to examine their present insurance policies for adequacy in covering liability for spill incidents and response. The plan also recommends "Good Samaritan" legislation to limit the liability for persons or organizations called upon by the scene manager to provide assistance during an incident.

Financing

At a time when most local governments are experiencing severe fiscal constraints, funding becomes critical to the implementation of local spills programs. Existing financing opportunities for local hazardous spills programs were identified. The analysis revealed there is little funding available at the state or federal level for local hazardous spill programs. Several potential financing mechanisms are available at the local level, e.g., special taxes, service fees, permit fees and fines. However, a strong local commitment is required for local financing to be viable.

Contingency Planning

Lastly, the plan examines mechanisms for ensuring an ongoing planning effort: one important aspect of local cooperative planning is the establishment of Hazardous Materials Planning Advisory Committees in each county. These committees should have permanent status, well defined responsibilities and a wide membership of government and private organizations. Communities need to work with the California Highway Patrol area offices to establish Interagency Agreements delineating agency responsibilities. The regional planning process should also be continued. ABAG will endeavor to serve as regional coordinator for hazardous spill planning. Building upon these continuing planning efforts, the regional plan will be updated as needed.

CHAPTER II

SUMMARY OF RECOMMENDATIONS

RISK ASSESSMENT

- 1.1 A centralized program should be developed to provide a comprehensive source of spill information. Data systems should include records of spill time, specific location, material type and quantity, source, responsible party, reason for the spill, responding and notified agencies, cleanup and containment activities, casualties, costs, and the cleanup agency or company.
- 1.2 A "right-to-know" or disclosure law should be considered as a means of requiring sources dealing with hazardous materials to disclose their activities in order to direct prevention planning and illuminate response needs. Any proposed law needs to be examined with respect to practicality and protection of proprietary rights.
- 1.3 Local communities should conduct inventories to more accurately ascertain the types, quantities and uses of hazardous material in their jurisdictions.
- 1.4 Studies should be conducted to assess the risk of volatile toxic and hazardous air emissions.
- 1.5 Tunnels and bridges offer unusual and serious conditions in the event of a hazardous material spill and should be the focus of a separate study for the Bay Area.
- 1.6 Problems with underground containment need to be assessed with guidelines enacted and enforced regarding storage requirements and remedial action taken at existing sites where problems are apparent.
- 1.7 The regional risk assessment should be updated periodically to make available the most accurate information possible.

PREVENTION

- 2.1 Any prevention programs at fixed facilities should include the following items as a minimum:
 - o adoption of the most recent edition of the Uniform Fire Code;
 - o enactment of a fee schedule for permits;
 - o inventory of hazardous materials and site inspection before permits are issued or renewed;
 - o proper hazardous materials storage before permit issuance and permit renewal;

- o set penalties for violation of the code;
 - o posting of hazard warnings wherever hazardous materials are stored (e.g., National Fire Protection Association 704 system).
- 2.2 It is recommended that the minimum prevention program described in 2.1 be applied to transfer facilities with the exception that inventories not be required.
 - 2.3 Local agencies, in the course of prevention and response planning activities at transfer facilities, and in consultation with the individual facility operators, should designate the location and/or person at each facility where up-to-date information about materials present can be obtained promptly in the event of an incident.
 - 2.4 In stressing the need for recommendation 1.2, local governments should consider the following disclosure ordinances as examples: the Governor's Model Hazardous Materials Disclosure Ordinance (presented in Appendix A), and those of the cities of Santa Monica, Vallejo, Cincinnati, Ohio and Philadelphia, Pennsylvania.
 - 2.5 The issue of public right-to-know is a political decision that will be addressed by each jurisdiction.
 - 2.6 The Hazmat Model Code from the Santa Clara County Fire Chiefs' Association should serve as a model for developing local comprehensive hazardous materials management programs.
 - 2.7 As the disclosure process and continued inspection and mapping of information provide better understanding of the situation, an effort should be made to evaluate the usefulness of zoning restrictions as a tool for hazardous materials management.
 - 2.8 The California Highway Patrol should continue its effort to increase inspection frequency and to identify repeat violators of the hazardous material transportation regulations.
 - 2.9 Local law enforcement officers should be trained in the hazardous material transportation regulations so that they can cite violations on city streets.
 - 2.10 Routing programs should be considered as a local prevention tool. However, there is a need to assess local movement of hazardous materials to identify the potential for such programs. Proposed routing programs should follow the guidelines presented in Chapter V.
 - 2.11 No new state regulations should be enacted at this time regarding the movement of hazardous materials by rail.

- 2.12 Local response agencies should contact rail companies individually to develop prevention and response plans as needed in their jurisdiction.
- 2.13 Rail companies should continue their training programs for local government response personnel.
- 2.14 Coordinated response planning for pipeline safety, as outlined in the California Pipeline Safety Act, should be an integral part of hazardous spill prevention.
- 2.15 The civil injunction should be considered as a critical legal tool available to local district attorneys that is adaptable to the complex problems of enforcement of hazardous material and hazardous waste regulations.
- 2.16 Local inspection and enforcement agency staff should work with the district attorneys to obtain correction of unsafe and hazardous situations before a serious incident occurs.
- 2.17 If specific violations of State law are suspected, the injunction process provides local access to State records otherwise unavailable. Over the longer term, arrangements should be established with state regulatory agencies to report specific violations to the district attorneys. This should improve enforcement, by increasing local awareness of violators, particularly repeat violators, and by encouraging local participation in the enforcement process.

SPILL RESPONSE

- 3.1 All response agencies should adopt a common set of objectives: prevention of hazardous materials incidents; protection of human health and safety, water supply, wildlife, aquatic resources and environment, and property; suppression and containment of release; traffic control; fire suppression; and effective training.
- 3.2 Local spill plans should be evaluated and updated as needed using the recommended criteria presented in Appendix B.
- 3.3 Local response agencies should adopt an incident command system for the scene management of hazardous spills based on the FIRESCOPE Incident Command System. All personnel should be trained in ICS and it should be used in planning response procedures.
- 3.4 Subject to the interpretation of SB 1483 (Vehicle Code 2454 and Government Code 8574.8, August 1982), new legislation may need to be enacted to enable law enforcement agencies to delegate scene management of hazardous spills on local streets and roadways, than highways, to other appropriate public agencies.

- 3.5 Local Hazardous Materials Planning Advisory Committees should be established in each county to update or prepare coordinated action plans.
- 3.6 Local governments should clearly designate the Scene Manager where not already decided. In particular, if localities are given the option of redesignating the Scene Manager for spills on local streets, this designation should be made as soon as possible.
- 3.7 All possible first responders should be able to provide initial hazard assessment, personal safety, notification, site control, evacuation and containment of smaller spills. HAZMAT teams should be capable of better identification, monitoring, containment of most spills, and cleanup of small amounts of relatively non-hazardous materials that can be done quickly without risk to response personnel:

	<u>First Responders</u>	<u>HAZMAT Teams</u>	<u>Private Cleanup Companies</u>
Assessment/Personnel Safety	X	X	X
Notification	X	X	
Site Control	X	X	
Evacuation	X	X	
Containment	X	X	X
Identification	X	X	X
Monitoring		X	X
Cleanup		X	X
Disposal			X

----->
 (increasing severity of accident and subsequent
 increase in sophistication of capabilities)

- 3.8 The following goals are recommended for an effective HAZMAT team:
 - o HAZMAT teams would be available to respond to all suspected hazardous material spills within predesignated areas, upon notification, where there is no federal or state preemption.
 - o There should be a minimum of four trained HAZMAT members on a team at any one time. This would require a total of at least 10-12 persons on a team.
 - o Teams should be able to respond within 30 minutes.
 - o Teams should carry or have immediate access to the types of equipment listed in Appendix C.

- o Team members should receive the Level 3 training described in Chapter VII.
- o Besides responding to spills, team members may also be involved in related duties such as inspection, public information, and training of hazardous materials handlers and first responders.

3.9 Existing or proposed local HAZMAT teams should be fully developed to service the following areas:

First Priorities: Oakland, to service surrounding communities in Alameda County; two units in Contra Costa County, one servicing the El Cerrito to Rodeo area and another serving Martinez, Concord and Pittsburg area; Silicon Valley, from Palo Alto to San Jose; San Francisco; and South San Francisco.

Second Priority: San Mateo County (possibly sharing use of South San Francisco teams); Southern Alameda County; Vallejo - Benicia; and Southeast Marin County.

Third Priority: Remaining Bay Area.

- 3.10 At a time of limited resources, funding priorities should be given to those teams serving several communities. Funding for the establishment and maintenance of such teams could appropriately be contributed by the entire service area.
- 3.11 Sharing of public HAZMAT teams should continue and be supported, since it is necessary for effective regionwide spill response as long as economics preclude every city from having a team.
- 3.12 While existing fire mutual aid agreements have provided for extraordinary loans of HAZMAT teams to neighboring jurisdictions, routine team sharing will often require special agreements (e.g., inter-agency agreements, contracts, and joint powers agreements). These special shared use agreements should address issues that are not ordinarily covered in fire mutual aid agreements; the checklist in Appendix D is recommended as a guide to agencies involved in the development of such agreements.
- 3.13 Private firms may have significant equipment and technical resources, including in-house HAZMAT teams. Local scene managers and planners should examine private capabilities within or easily accessible to their jurisdiction and establish cooperative agreements where possible.
- 3.14 Spill response agencies should maintain or have access to more refined methods and commensurate training for defining evacuation zones than that provided by the DOT Hazardous Materials Emergency Response Guidebook. ABAG should work with

the Bay Area Air Quality Management District and other interested agencies to develop a two-tiered system for eventual implementation in the Bay Area: First, a handbook that is intermediate in sophistication to the DOT guidebook and the Illinois EPA guidebook should be developed for wide distribution to local police and fire department personnel. This handbook should require a minimum level of training and no specialized instrumentation for its use. Second, access to an appropriate computer model should be provided to all spill response agencies in the Bay Area. (All necessary computer hardware and/or communication equipment should be designed to be portable such that they may be transported to spill sites via either van or helicopter.)

- 3.15 U.S. DOT and other appropriate federal and state agencies should sponsor verification and sensitivity tests for the variety of methods currently in use to define evacuation zones during toxic gas release emergencies. Special problems posed by microclimatic variations with cold vapor clouds should also be assessed, and appropriate methods developed for handling these situations.
- 3.16 911 systems should be adequately funded and organized to serve as part of a centralized notification system for hazardous spills. Similarly, the CHP and OES system should be adequately funded to provide the statewide notification network.
- 3.17 Notification call lists should be developed and updated by all response agencies in cooperation with the local Hazardous Materials Planning Advisory Committees. These should become standard operating procedures for local public safety dispatchers, including those at 911 centers. A guide for developing local call trees is presented in Appendix E.
- 3.18 Emergency Services Offices should develop notification agreements with major industries within their jurisdictions. Industry is encouraged to install early warning systems for hazardous material releases.
- 3.19 Incident report forms should be available to all likely scene managers and dispatchers. A model information report form and model work form are presented in Appendix F.
- 3.20 Notification and reporting procedures should be a standard part of all training programs, at least at the field supervisor level and above.
- 3.21 With the passage of AB 3019, public utilities, municipal and privately owned, are required to belong to a regional notification center. This notification center, i.e., Underground Services Alert (USA) should be informed of the location of all pipelines. In the event of a spill entering underground passageways, public agencies should notify USA pipeline owners for assistance and information.

- 3.22 Shippers of hazardous materials should be notified immediately of an incident involving their commodities since they should know what the materials are and how to properly handle them.
- 3.23 Inventories of hazardous materials, when keyed into the block or address files used by the public safety dispatch centers, should facilitate the notification of proper response personnel inside and outside the agency.
- 3.24 Recognizing that CHP and OES are presently developing the details of a statewide notification and reporting system, it is recommended that this system include revisions of the Vehicle Code to require spills to be immediately reported to the CHP, police or appropriate local agency, identifying what the spilled material is.
- 3.25 Local regulations should be developed mandating the spiller of a hazardous material release to notify the local emergency response agency immediately after the incident occurs.
- 3.26 The overall strategy to address specific interagency communication problems should be:
- o First, develop intracommunication capabilities (within departments, cities and counties). There are so many levels of government that local cities and counties must develop their own systems.
 - o Second, develop intercommunications capabilities (among counties, state and federal agencies) to combine individual capabilities.
 - o Third, develop working relationships with local amateur radio emergency response groups to facilitate rapid and adequate use of existing communications capabilities during major incidents.

Special considerations are presented to assist individual jurisdictions in this effort.

- 3.27 In order to address communication problems, there should be a regional focal point (e.g., Region 2 of the State Office of Emergency Services or ABAG) to facilitate interagency coordination and to devise guidelines for ongoing intraagency efforts.
- 3.28 A single notification system should be publicized for public use in reporting a spill of an unknown or hazardous substance.
- 3.29 The public should be educated as to when notification is necessary and what information they will need to provide.

- 3.30 The capabilities of 911, Zenith-12000 and local police/fire departments to receive and act upon initial spill reports should be assessed and, if necessary, improved.
- 3.31 Once the material is known, members of the general public should continue to call the San Francisco Regional Poison Control Center for health information. The Poison Control Center's telephone number should be included in any public information material or campaign. Procedures should be made to notify Poison Control should a spill occur to alert them to possible calls from concerned citizens. The efforts of the Poison Control Center should be supported and continued, as it provides a unique, essential service to the region.
- 3.32 In order to effectively disseminate information to the public on a large scale, local media, emergency responders and public information officers from appropriate agencies should coordinate efforts and plan dissemination of information before incidents occur.
- 3.33 Local public health officers organizations and community disaster organizations should be notified in cases of large hazardous material incidents. Additionally, through the medical association, physicians should be made aware of the procedures to be followed and resources available during hazardous materials spills so that they can treat their patients appropriately.
- 3.34 A concerted public information campaign focussing on what citizens should do in case of a toxic spill or release should be conducted in the Bay Area. A citizens guide to hazardous spills is presented in Appendix G.
- 3.35 Small businesses should be made aware of and utilize resources such as MSDS's, professional and trade associations, government agencies and local fire departments for providing information and training to their employees, as mandated by law.
- 3.36 Local fire/public safety departments should work with small businesses, as in the city of Santa Clara, to educate and inform them on proper handling, use and storage of hazardous materials.
- 3.37 Response agencies should develop working relationships with members of the media so that, in the event of a spill, reporters will know whom to contact for reliable information. As recommended by the training subcommittee, media relations should be included in response training.
- 3.38 A media workshop should be held to promote good and effective working relationships between the media and the response agencies with whom they will be involved in case of a hazardous materials incident.

TRAINING

- 4.1 Public agencies having a role in hazardous spill response should provide specialized training to their employees using the model and outline presented.
- 4.2 Since staffs of volunteer fire departments are not paid employees and therefore typically hold other full time jobs, the method for training volunteers in dealing with hazardous materials must be made particularly convenient to their needs. Volunteer fire departments should receive Level 1 and Level 2 training, and should develop agreements with other agencies for assistance should Levels 3 and 4 expertise be needed.
- 4.3 Private industries, having the primary role in preventing incidents, should provide specialized hazardous materials training to their employees, following the general guidelines presented, and with flexibility to tailor such training to the needs of their particular industry and employees.
- 4.4 Agencies having responsibility for inspections and prevention education/information activities, should recognize the importance of prevention and make it a high priority by allocating a greater portion of their resources to it.
- 4.5 Staff with responsibility for prevention should receive specialized training in hazardous materials as a regular part of their professional preparation.
- 4.6 Medical response personnel, in order to protect the health of their patients and themselves, should receive job-specific hazardous materials training from a central source which would: identify who needs training; match professional responsibilities to specific contents of training; and support adoption of standards for professional preparation which include such training.
- 4.7 Hospitals providing emergency services should carry out hazardous spill drills as part of their required testing of general emergency medical response capabilities.
- 4.8 In order to improve hazardous materials training in the Bay Area in the most cost-effective and efficient manner, a regional hazardous materials training system should be set up through the local community colleges. The system should be designed and implemented according to the guidelines described.

LIABILITY AND FINANCING

- 5.1 "Good Samaritan" legislation should be enacted to limit the liability for persons or organizations called upon by the scene manager to provide assistance during an incident.

- 5.2 Local governments should examine their present insurance policies for adequacy in covering liability for spills incidents and response.
- 5.3 Local agencies should establish a reserve fund or participate in an insurance program in anticipation of spill related expenditures.
- 5.4 Additional mechanisms should be explored to assist local governments in paying for emergency response and cleanup actions.

CONTINUING PLANNING

- 6.1 Counties with existing Hazardous Materials Planning Advisory Committees should strengthen their capabilities by:

- o giving them permanent status, perhaps affiliated with the Disaster Council;
- o delineating their responsibilities, particularly in contingency plan preparation and interagency training;
- o assuring a wide membership of government and private organizations.

Those counties without Hazardous Material Planning Advisory Committees should form one as soon as practical using the planning and coordination role of local offices of emergency services.

- 6.2 Wherever practical, these committees or the present Disaster Council should be given the power to adopt official plans through a Joint Powers Agreement. In other counties, local governments are urged to participate fully in committee deliberations and adopt plans as soon as possible.
- 6.3 After reviewing the CHP Interagency Agreements with the County Hazardous Materials Planning Advisory Committees and local offices of emergency services, local agencies should sign and support these agreements as soon as an acceptable contract is developed. These agreements can serve as the cornerstone for revised countywide spills response plans.
- 6.4 The regional planning process, having successfully coordinated activities of various response agencies, identified common problems and recommended model approaches, should be continued. ABAG should continue to serve as regional coordinator for hazardous spill planning.

CHAPTER III

INTRODUCTION

PURPOSE

Comprehensive hazardous material accident prevention and emergency response programs are an important need of contemporary society. Hazardous materials are found almost everywhere in potentially dangerous quantities. When a spill occurs, response is often disorganized and inefficient, with confusion regarding what to do, who is in charge, and where to go for help. Since hazardous materials will remain prevalent, it is imperative that adequate plans be formulated and enacted to prevent spills and to provide adequate response should an incident occur. The primary goal of this plan is to develop such a coordinated program to serve the San Francisco Bay Area.

The following are principle objectives of the plan:

- o Determine the nature and extent of hazardous material use and transportation in the region and associated risks.
- o Assess the region's existing capabilities to prevent and respond to hazardous materials incidents.
- o Coordinate the many agencies responsible for spill prevention and response, such that efforts are consistent and efficient.
- o Expand mutual aid agreements among appropriate jurisdictions as needed.
- o Analyze personnel training needs, and develop models and training.
- o Develop requirements for public information programs.
- o Develop a mechanism for continued coordination at the local and regional level.
- o Examine fiscal options to implement the developed prevention and response programs.

SCOPE

The scope of this plan is comprehensive, including accidental releases of gaseous, liquid and solid hazardous materials. The plan addresses the movement of these materials by all modes of transportation over public and private properties. The working definition used for this plan is from the State Hazardous Material Incident Contingency Plan:

"'Hazardous material' means a substance or combination of substances which, because of quantity, concentration, physical, chemical or infectious characteristics may either:

- a. Cause, or significantly contribute to an increase in mortality or an increase in serious irreversible, or incapacitating reversible, illness; or
- b. Pose a substantial present or potential hazard to humans or the environment."

BACKGROUND

The San Francisco Bay Area, comprised of the 93 cities and nine counties surrounding the San Francisco Bay, is at particularly high risk from hazardous material spills. Over five million people presently live in this 7,000 square-mile area. Another one million are expected by the year 2000. This population is served by over 300 fire departments, offices of emergency services and other spill response agencies. As a major seaport, a crossroad for several major highways and railways, a substantial industrial area (including oil refineries, chemical plants, and electronics plants), the base for numerous military installations, and a productive agricultural region, the Bay Area is the focus of major activities dealing with hazardous materials in the midst of a populous region.

When the development of this plan began, no comprehensive spill prevention program was in effect throughout the Bay Area, although some communities had been making efforts to regulate local industries. Minimal coordination existed among the multiple agencies that respond to spills, with sometimes inconsistent policies among overlapping jurisdictions and adjacent communities. Most local response personnel were inadequately trained to handle the large variety of hazardous materials subject to spills. Little specialized equipment was available to properly contain, remove or neutralize spilled materials, or to protect responding personnel.

With the assistance of the U.S. Department of Transportation (DOT) grant, regional planning was initiated in September 1981. A 45-member San Francisco Bay Area Hazardous Spills Task Force was formed at the onset of this project. In addition, four supporting subcommittees were formed to focus on prevention, response, risk assessment and toxic gases, and training. These subcommittees collected and assessed information on existing programs, addressed specific issues relating to their particular disciplines, and made recommendations on elements for a regional spill program. The Task Force reviewed and adopted policies and plan elements, in addition to looking at liability and fiscal concerns.

The initial involvement of the multitude of agencies and industries was selected (1) to initiate coordination among appropriate parties, (2) effectively utilize expertise and various perspectives within the region, and (3) to better ensure adoption by these same implementing agencies once the program is developed. Representatives on the Task Force and Subcommittees are listed in Chapter X - Acknowledgements.

USE OF PLAN

The recently adopted State Hazardous Material Incident Contingency Plan acknowledges that local agencies have primary responsibility to arrange for personnel and equipment for emergency response to incidents, barring special circumstances of state or federal preemption. The San Francisco Bay Area Hazardous Spill Prevention and Response Plan is consistent with the State Plan and is designed to provide additional guidance to local governments faced with this responsibility.

This plan is not an operations plan. Such plans need to be established at the local level. However, these local plans cannot be prepared without an understanding of the nature and scope of the problem. The plan therefore,

- o identifies major problems and issues related to hazardous spill prevention and response, and
- o presents recommendations, guidelines and models to solve these problems.

The Bay Area is continually faced with hazardous material emergencies requiring immediate response. Communities do not stand alone in the problems they face on this issue; spill response typically involves numerous agencies and jurisdictions. At a time of limited resources, most local governments cannot afford to work independently, nor can they afford not to be prepared. This plan is therefore intended to provide direction and promote regional cooperation and consistency.

Actual implementation of this plan will be in the context of local planning efforts. It will occur through the following:

- revised county contingency plans (designating roles and responsibilities)
- general plan amendments (in such areas as zoning, routing, and safety)
- local ordinances (e.g., right-to-know)
- local response protocol (e.g., training, what HAZMAT teams will do)
- improved coordination (establishment of standing committees and exchange of information)

One of the most important features of this plan has been the approach. The Task Force and subcommittees have established, among a diverse group of people, working relationships that will evolve into the continuing planning process. Building upon this dialogue and the developing county programs, the regional plan will be updated as needed.

The plan is presented in three separate volumes. Volume 1 presents the issues and plan recommendations. Support documents are presented in separate reports: Volume 2, "Risk Assessment" presents detailed maps and methodology developed during the risk assessment phase; and Volume 3, "Technical Support Documents" presents additional discussions and background material on each section of the plan.

CHAPTER IV

RISK ASSESSMENT

INTRODUCTION

The identification of specific locations in the San Francisco Bay Area at high risk from hazardous material releases¹ is important in developing prevention plans and response capabilities. Risk involves both the likelihood of an event and the magnitude of harm should the event occur. Risk was determined in this study through an evaluation of the following data for the Bay Area:

- o areas of hazardous material concentration
- o principal transportation routes
- o hazardous material transfer points
- o previous spill history
- o population
- o population growth
- o location of vulnerable water sources

Extensive maps and discussion of the risk assessment methodology are presented in Volume 2 of this Plan. Data used for the population and growth elements of this analysis were derived from ABAG's "Projections 79," 1980. The San Francisco Regional Water Quality Control Board provided information on the location of vulnerable water sources.

Through the analysis and integration of these data, areas were associated with relative degrees of risk from hazardous material spills. This analysis was initially performed on a county-by-county basis, with subsequent determination of regional trends.

Two additional important studies were not available for use in this report, but also should be examined with respect to hazardous material location upon their release. The San Francisco Regional Water Quality Control Board (RWQCB) is undertaking an investigation to determine the location and extent of the release of hazardous materials from underground facilities in Santa Clara, Alameda and San Mateo Counties. This investigation will include a survey of approximately 1400 industries to identify those that have underground facilities, groundwater monitoring of those that have a high potential for leaks from these facilities and cleanup of those sites that have released hazardous materials. The other study is being done by the California Department of Health Services (DHS) and involves identifying abandoned hazardous waste sites throughout the region. Initial findings are presented in Tables IV-1 and IV-2. The format of the study allows for the inclusion of new data as it becomes available.

¹Throughout this plan, the terms release, spills and incidents are used interchangeably.

TABLE IV-1. ABANDONED HAZARDOUS WASTE SITES IDENTIFIED BY
CALIFORNIA DEPARTMENT OF HEALTH SERVICES,
PARTIAL FINDINGS

<u>Company Name</u>	<u>Address</u>
<u>Alameda County</u>	
Electrocoatings	1401 Park Avenue, Emeryville
FMC	8787 Enterprise Drive, Newark
General Electric	5441 E. 14th Street, Oakland
Leslie Salt Co.	End of Enterprise Drive, Newark
Pacific State Steel	35124 Alvarado-Niles Road, Union City
Trojan Powder Co.	Foot of Lewelling, San Leandro
Westinghouse Electric	5899 Peladeau Street, Emeryville
<u>Contra Costa County</u>	
Allied Chemical	Nichols Road, W. Pittsburg
American Smelting & Refining Co.	Highway 40, Selby
Bray Oil Co.	801 Wharf, Richmond
California Cap Co.	47th Street and Hoffman, Richmond
Chemical & Pigment Co.	Port Chicago Hwy. and Nichols Rd., W. Pittsburg
Citation Developers	Railroad Avenue, Hercules
Cooper Chemical Co.	2 Grant Road, Richmond
D and S Developers	Railroad Avenue, Hercules
Drew Sales	Castro near 7th Street, Richmond
Great Western Chemical Co.	860 Wharf Street, Richmond
Hercules Properties LMT	Railroad Avenue, Hercules
	Point Isabel, Richmond
Richmond Tank Car & Manufacturing Co.	Ferry Point & South Garrard Blvd., Richmond
Shell Chemical/PG&E Pond	Willow Pass Road, W. Pittsburg
Stauffer Chemical	100 Mococo Road, Martinez
Stauffer Chemical	1415 S. 47th Street, Richmond
Union Collier	Nichols Rd. & Port Chicago Hwy., W. Pittsburg
United Heckathorn	401 Wright Street, Richmond
Western States Chemical	End of Nichols Road, W. Pittsburg

TABLE IV-2. SITES OF HAZARDOUS MATERIAL SPILLS OR LEAKS FROM STORAGE TANKS BEING INVESTIGATED BY THE SAN FRANCISCO REGIONAL WATER QUALITY CONTROL BOARD

<u>Site Name/Location</u>	<u>Constituents</u>
<u>Alameda County</u>	
Ashland Chemical Co., Newark	solvents
General Electric Co., Oakland	PCBs
Jones Chemical, Milpitas	solvents
<u>Contra Costa County</u>	
Burmah-Castrol Oil Co., Richmond	oil, solvents
<u>Santa Clara County</u>	
Advanced Micro-Circuits, Sunnyvale	solvents
Fairchild Camera & Instrument Corp., San Jose	solvents
Fairchild, Palo Alto	solvents
Fairchild, Mountain View	solvent
Fairchild, Santa Clara	solvent
Hewlett-Packard, Palo Alto (3 sites)	
640 Page Mill Road	solvents
1501 Page Mill Road	solvents
Deer Creek Road	solvents
Intel Corp., Mountain View	solvents
International Business Machines, San Jose	solvents
National Semiconductor, Sunnyvale	solvents
Signetics, Sunnyvale	solvents
Westinghouse Marine Division, Sunnyvale	PCBs
<u>Marin County</u>	
Fairchild Camera & Instrument	solvents

STUDY OBJECTIVES AND LIMITATIONS

While specific areas were associated with varying degrees of risk, it is important to understand the criteria and methodology for obtaining and assessing the data. If used correctly, the findings of this study should satisfy the major objective of providing identification of the degree of risk from releases of hazardous material throughout the San Francisco Bay region. These results also demonstrate the use of the methodology developed in the study, which uses a map model to determine risk over an extensive and diverse region.

In lieu of conducting an inventory of all industries throughout the Bay Area, forty-six key industry types were selected as those most important in association with hazardous materials. While these key industry types are not inclusive of all industries dealing with hazardous materials, the general locations of these industries are probably representative of the major areas where hazardous materials are concentrated. Thus, the location of key industry functioned as an indicator of the general distribution and concentration of hazardous materials.

The study further limited the identification of key industries to those of substantial size, based either on the number of employees (minimum of 25) or the magnitude of air emissions. While the spill risk from small facilities is recognized as important, practical considerations precluded the location of every individual site. Again, the location of large industries heavily associated with hazardous materials should result in the identification of the majority of those general regions associated with hazardous materials. While some oversights will occur, e.g., areas with only small facilities and areas with hazardous materials from users not associated with key industries, they do not detract from the identification of major areas based on large key industry location.

A further limitation of the data base is the quality of the sources from which key industries were located. The major sources were business directories and can not be viewed as always offering comprehensive, accurate data. The north bay counties were not included in the primary business directory (Contacts Influential), resulting in a distinct bias toward the lack of recognition of industries in this region. However, the data base appears to have been sufficient in satisfying the major goal of identifying the major areas of hazardous material concentration.

Similarly, the information indicates only the major transportation corridors ignoring many of the smaller routes used for hazardous materials transport. Data on the amount of freight associated with these corridors was directed toward overall quantity, with little distinction being made toward specific identification of material type. However, this transportation data was thought sufficient to identify principal transportation routes of concern.

As a further measure to better identify specific pathways and locations of hazardous materials, the Risk Assessment Subcommittee provided information based on personal expertise with regard to

important areas that were not recognized following the basic methodology. These data were used to supplement the map series. Incorporating this information with the formally developed data base enhanced the accuracy and completeness of the identification of areas of substantial hazardous material concentration.

The spill record compiled and assessed in this study for the Bay Area during 1980 provides useful information regarding the types and magnitudes of releases, as well as indicating the relative frequency of past spill events in specific locations. However, it must be recognized that the spill record is not complete; it represents only an unknown fraction of actual incidents. Since care was taken to minimize local bias through the selection of appropriate data sources, the information obtained in this study should provide a reliable history of the general pattern and nature of hazardous material spills in the region.

In the final assessment of this data, it must be understood that areas of high risk represent locations only where a spill that will have a large impact is most likely to occur. The fairly ubiquitous use of hazardous materials implies that a substantial spill incident can occur almost anywhere in the region. However, identification of those areas where the probability of spill occurrence is high and would result in high levels of harm, provides necessary guidance for the adequate distribution of resources to plan for and respond to hazardous material spills.

EVALUATION BY COUNTY OF HAZARDOUS MATERIAL SPILL RISK

Alameda County

Major portions of Alameda County are high risk areas with regard to hazardous material spills. The area along the northwest portion of the county, from the county line through Alameda, appears particularly susceptible to serious spill incidents. The section nearest the Bay is heavily and diversely industrialized, with some concentration of plants dealing with: industrial organic chemicals; speciality cleaning, polishing and sanitation preparation; paints, varnishes, lacquers, enamels and allied products; and gasoline bulk plants. Major military bases are also in this area. Highways 80 and 17 traverse this corridor and are used by a relatively large number of trucks. The Oakland harbor is the site of a major port, serviced by the Southern Pacific, Western Pacific and Sante Fe Railroads, with the Southern Pacific a major carrier of hazardous materials. Several transfer facilities are located in the region, providing possible opportunity for accidental releases during material handling. Several major petroleum product pipeline cross the Bay between the Oakland area and San Mateo County. The Oakland International Airport is located just to the south of this critical area.

The heavy concentration of industries and transportation routes apparently servicing these industries is reflected in the spill history of this critical area. Many spill incidents were recorded in this area during 1980. The majority of these releases were of petroleum products, although other substances were also spilled.

Seriously compounding the problem of high spill potential is the high population density. Extending inland from the heavily industrialized strip along the Bay are highly urbanized residential neighborhoods including Berkeley and Oakland. This mix of industrial and residential development creates a high risk from hazardous material spills in several ways. If hazardous substances should spill at the industrial sites, dangerous fumes would not have to go far to affect large numbers of people. The transportation routes servicing these areas often go through residential areas, further enhancing the exposure potential of the general populace in the case of a spill during transit. Aggravating the problem is the high traffic density, comprised of large numbers of trucks and personal vehicles, increasing the likelihood of an accident.

While this strip extending northward along the Bay from Alameda to the county line appears the most critical area, other sections of the county also have substantial risk from hazardous material spills. Clusters of industries generally follow the major north-south thoroughfares in the western portion of the county, with Highway 17 receiving considerable truck and automobile traffic. Following these same general routes are natural gas pipelines and railroad lines. A relatively large number of spills, several of which were fairly large, occurred in this region during 1980.

The population density in the southwest portion of the county is less than in the northwest. However, much of the area is residential and substantial impact may occur to relatively large numbers of people if a spill should occur in this region.

The entire western portion of the county overlies a major groundwater basin. The area bordering Niles Canyon Road and the area designated as Niles Cone (at Union City) have been designated by the RWQCB as important locations for surface water infiltration into the groundwater basin. If spills should occur in the area, or if chronic leakage should occur at fixed facilities and drain into recharge areas, the groundwater basin could become seriously contaminated. Since groundwater is an important source of potable water in the Bay Area, the quality of the groundwater is an important health consideration.

The RWQCB has designated two other locations in the county as potentially vulnerable to groundwater contamination through spills of hazardous materials: Highway 580 above Castro Valley to Altamont Pass; and Highway 680 from the Ygnacio Valley groundwater basin to Mission Boulevard to the south. Both of these areas receive considerable truck traffic and were the sites of several spills during 1980.

The eastern portion of the county has relatively little industrial development. However, Highway 580, the Southern Pacific and Western Pacific railroads and several natural gas and petroleum product pipelines link the county to the California central valley region. Several spills were recorded along this general corridor during 1980. Since the population density of eastern Alameda County is relatively low, a spill incident here should present less hazard to population than would occur for similar incidents in other sections of the county.

Contra Costa County

A substantial concentration of industries dealing with hazardous materials was noted in the Richmond area, contiguous with the heaviest industrial concentration in Alameda County. An important strip extends from Richmond following the northern county border along San Pablo Bay and Suisun Bay up into the Delta. The most important industry types identified are gasoline bulk plants and industrial inorganic chemical plants. Two naval installations are located along this strip, at Point Molate and Port Chicago. Two class 1 waste disposal sites are along this strip. Highway 80 and the Southern Pacific railroad carry considerable traffic in the county between Richmond and the Carquinez Straits area where they extend into Solano County. Route 4 is the major truck route servicing the northern section of the county, with three railroads also having lines in this area. The Port of Richmond is a major shipping facility and freight transfer point.

Substantially more spills were recorded for Contra Costa County during 1980 than for any other county in the Bay Area. Most of these incidents occurred in the industrialized strip between Richmond and Martinez, with the number of incidents tapering off in the northeast portion of the county. The area around Richmond was particularly characterized by many spill incidents. Several incidents were also reported in the Carquinez Straits, which may have impact on the environmental quality of the Bay and Delta.

The population density in much of this area is relatively low, except near Richmond. However, significant population growth is projected for much of the region bordering the Carquinez Straits. An intake to the Contra Costa Canal is located in West Pittsburg, so a spill in this area could pollute a potable water supply.

Another important region in the county extends from Martinez into Concord. Several plants manufacturing electronic components and semi-conductors are located in this area. The Naval Weapons Station is a major military installation in Concord. Railroad spurs service the area off the major railroad network. Population density is now relatively low, but a substantial increase is projected. The spill record shows that a relatively large number of incidents occurred in this region during 1980.

Many natural gas and petroleum product pipelines are in the county. Pipelines extend through the Carquinez Straits, offering the potential for serious environmental harm to the Bay and Delta following a spill. Many of these pipelines service the refineries in Richmond and Hercules. These pipelines also provide major transportation networks out of the region.

The RWQCB identified two highways in the county offering high risk from a spill to water bodies. A spill occurring on San Pablo Dam Road or on Highway 24 between the Caldecott Tunnel and the top of the hill near St. Stephens Drive may result in contamination of San Pablo Reservoir. Since this facility is a major potable water reservoir of

the East Bay Municipal Utilities District, a spill could create a serious problem. A spill occurring over the crest of the Berkeley Hills in the Caldecott Tunnel could result in contamination of Lake Temescal in Alameda County.

Highway 680 links Contra Costa County with Solano County to the north and Alameda County to the south. This highway receives considerable vehicle traffic, both trucks and private automobiles. The area is primarily residential, although not densely populated. Several spills have been recorded along this route during 1980. Since the major rail line paralleling this highway has been abandoned, the most serious potential for spills in the center part of the county appears to originate from the highway.

The eastern portion of the county has relatively little population. However, there is a substantial pipeline network through the area and a major railroad. Several spill incidents were recorded in this region during 1980. Spill incidents in this area, unless occurring in the Brentwood area, probably would not immediately subject large numbers of people to exposure. An important concern following a spill here would be contamination of Delta waterways, which provide the principal water supply for much of the county.

Marin County

The risk from spills of hazardous materials is relatively low throughout Marin County. Most of the county is rural or suburban, with little industrial development. Past spills have centered around the main highways traversing the county, excluding Route 1. A cluster of spills was noted around Sausalito, probably originating from recreational boating activities.

The major corridor used for freight transport in Marin County generally follows Highway 101. Besides the highway, hazardous materials are shipped over the Southern Pacific Railroad and a natural gas pipeline. This corridor overlays a large groundwater basin. However, most freight destined for Oregon or other distant northern areas is probably shipped through the Sacramento Valley following Route 5.

The RWQCB characterizes the Nicasio Reservoir as vulnerable to a spill from Petaluma Road. Substantial quantities of hazardous material would not be transported on this road frequently. However, sporadic shipments of materials such as gasoline, servicing the small coastal communities, should be expected. In addition, material not ordinarily considered as hazardous, such as milk, could seriously affect an aquatic environment if spilled in sufficient quantity.

Marin County can be characterized as having relatively little hazardous material within the county, either at fixed facilities or along transportation corridors, and little population at risk in the event of a spill. However, while the likelihood of a significant spill in Marin County is relatively low, it must be remembered that enough hazardous materials are present in the county to result in a spill of

major importance. Thus, some effort should be made in planning for a spill, although perhaps not of the magnitude needed in the more industrialized, populous counties.

Napa County

The County of Napa is very similar to Marin County with respect to risk from hazardous material spills. Napa is primarily rural, with even less suburban and small community development than Marin. One major transportation corridor runs through the county via Napa Valley. Natural gas lines, railroad lines and Highway 29 follow the valley, with some branching along these routes to connect into Solano County and Sonoma County. A major groundwater basin underlies the valley. In addition, the RWQCB has indicated that potential spills from Highway 128 and associated roads pose a threat to Lake Hennessey near the center of the county.

A major and highly visible industry in Napa County is the production of wine. While some hazardous materials may be used or produced as a product of this industry, wine itself poses an environmental threat from uncontrolled release. The aquatic environment is particularly sensitive to spills of materials such as wine which could suddenly impose a large oxygen demand to the detriment of most small systems.

San Francisco County

The most distinctive feature in assessing risk in San Francisco is the high population density. If an incident occurred almost anywhere in the county, relatively large numbers of people could suddenly be subjected to exposure. The large number of people concentrated in an urban setting also hinders any evacuation or other response action necessitated by release of hazardous materials.

Industries and transportation routes dealing with hazardous materials are concentrated in the eastern portion of the county. The industries are very diverse, with no apparent concentration of particular types. Highways 280, 101 and 80 service this portion of the county and provide a link with neighboring counties. Route 1 appears of lesser importance to the transportation of hazardous materials, but provides an additional link with Marin and San Mateo counties. Although receiving considerable truck use, the major highways also receive a large volume of automotive traffic. The high volumes and mixed traffic may have significant implications with regard to increasing the probability of accidents that could result in hazardous material spills.

The Southern Pacific Railroad and natural gas pipelines also pass through the eastern portion of the county. Substantial industrial activity appears to center around the Port of San Francisco. Perhaps reflecting the large industrial concentration at the port, many of the spills recorded for 1980 occurred at or near the waterfront. Several important freight transfer points also occur in the port area.

The western section of San Francisco was not found to be associated with large quantities of hazardous materials. However, the proximity to areas associated with hazardous materials and high population density results in a substantial risk from hazardous material spills over the entire county, particularly from toxic gas releases.

San Mateo County

The northern and northeast portion of the county from Daly City through Menlo Park was found to have many facilities dealing with hazardous materials. The predominant industry types were: semi-conductors and related devices; paints, varnishes, lacquers, enamels and allied products; and chemicals and allied products. The eastern and southern portions of the county contain some suburban communities but most of the region remains rural with little development.

The northeast portion of San Mateo County contains three major highways--routes 101, 280 and 82. Highway 101 is the most heavily used by truck traffic, although all three highways provide a route for transporting material within the county as well as providing links between San Francisco and Santa Clara counties. Paralleling the same general route as the highways are lines from the Southern Pacific railroad and natural gas pipelines. Major petroleum pipelines also cross the Bay between this region in San Mateo County and the Oakland area. Truck, rail and pipeline transfer facilities are concentrated in this region, resulting in considerable handling of hazardous materials. The major airport servicing the entire Bay Area, San Francisco International, is also located in the northeast corner of the county.

Reflecting the concentration of hazardous materials and transportation routes, most of the recorded spills occurred in the northeast section of San Mateo County. Many of these spills occurred along the waterfront, with a group of spills also clustered near Highway 101. However, San Mateo County had substantially fewer recorded spill incidents than all but the north bay counties.

The northern and northeast sections of the county have substantial suburban development offering a significant population at risk should a spill occur. However, population density is much less than in more urbanized settings such as San Francisco. Growth is anticipated throughout this region, so potential risk for hazardous materials spills should increase.

The northeast region of San Mateo County associated with concentrations of hazardous materials overlies a large groundwater basin. Spills occurring in this region, if allowed to infiltrate into the basin could pollute a large potable water supply.

An important issue now being raised with regard to protection of groundwater is the likelihood of chronic leakage of hazardous materials from underground storage containers. The magnitude of this problem is not currently known, although it is suspected to be a serious problem in areas used by the semi-conductor and electronic industries. The RWQCB is currently investigating this problem in San Mateo County.

The RWQCB also identified the Highway 92 crossing at Crystal Springs Reservoir as a possible location of a spill that could seriously affect a major water supply. Highway 92 provides a major artery between the coastal communities and eastern section of the county. While large industries are not prevalent on the coast, some transport of materials such as gasoline or agricultural chemicals would be expected on this highway.

Santa Clara County

In the northern portion of the county there is a large concentration of industries primarily dealing with semi-conductors and other electronic components. This region is commonly referred to as the Silicon Valley. Many of these facilities deal with substantial quantities of hazardous materials. Two active military installations are also in this region. This is a growing area, employing relatively large numbers of people, so the risk from hazardous material spills is well worth further examination.

The highways servicing the Silicon Valley carry a relatively high volume of both truck and automobile traffic. Highways 280/680 and 101 are the major highways in the area, providing an intraregional route as well as major arteries to the north and south. Several spurs of the Southern Pacific Railroad and Western Pacific Railroad serve the area and provide major transportation links to the region. Both natural gas and petroleum product pipelines are in the area. The San Jose Municipal Airport is located at the southern portion of this section.

The spill records indicate that the majority of incidents recorded in the county occurred in the Silicon Valley. Many of these incidents were not of petroleum products, unlike the other counties in the region. Although relatively few spills were recorded with sufficient detail to enable mapping, more incidents were recorded for Santa Clara County during 1980 than for any other Bay Area county excepting Alameda and Contra Costa.

Most of the northeast portion of the county is suburban, with relatively high density development. Significant growth is projected for the region. Thus, all the ingredients for a significant risk from hazardous materials exist in this region; considerable use and transportation of hazardous material in proximity to a large number of people.

Groundwater contamination constitutes a significant concern should a spill occur in various sections of Santa Clara County. The Santa Clara Valley is underlain by a large groundwater basin. The RWQCB has identified important recharge areas bordering Highway 101 that could result in contamination of the basin following a spill. The RWQCB also identified as an important area subject to contamination from hazardous material spills the corridor generally following Highway 17 east of the Santa Clara groundwater basin including the area near Lexington Reservoir.

Serious concern is arising in Santa Clara County regarding chronic groundwater contamination from leaking underground storage containers from abandoned facilities. As discussed for San Mateo County, the RWQCB is currently addressing this problem for Santa Clara County.

Solano County

Most of Solano County is rural, with little industrial or residential development. However, some industries dealing with hazardous materials, most notably a major petroleum refinery and hazardous waste disposal facility, were identified in the Vallejo-Benicia area. This general region is now the most populous portion of the county with projections indicating substantial future development.

Highways 80 and 680 are important routes for both truck and automobile traffic through Vallejo and Benicia, respectively. Highway 80 is a major transportation route linking the Bay Area with the California Central Valley and Sacramento. The Southern Pacific Railroad carries substantial quantities of hazardous material following the same general corridor as Highway 80.

Freight is shipped through the Carquinez Straits providing service to Stockton and Sacramento. A major port is located in Benicia. Numerous natural gas and petroleum product pipelines cross the Carquinez Straits, providing a major artery between Solano and Contra Costa Counties.

The spill record reflects the relatively high activity in the Benicia-Vallejo area. Spills were concentrated in this area with several releases occurring in the Straits. This section of the county appears to be at fairly high risk from hazardous material spills by virtue of its existing and projected population and industrial development, and the important transportation routes traversing the area.

Other sections of the county superficially appear to have little risk from hazardous material spills. The population density and industrial development is small excluding minor centers in Fairfield and Vacaville. However, a multitude of pipelines cross the county, offering the potential for immediate risk should one fail at a transfer facility and offering additional risk to the groundwater should one fail or leak.

The risk from hazardous material spills in Solano County appears to come from two diverse sources. The Benicia-Vallejo area contains population centers, significant industries and transportation corridors and a history of spills indicating their likelihood of occurrence. The remainder of the county appears more subject to sporadic and unpredictable spills, perhaps not immediately observable if occurring in an underground pipe. However, since substantial quantities of hazardous material appear to exist throughout the county, an increased incidence of both spill events and an increase in risk is to be expected following projected development.

Sonoma County

Risk from hazardous material spills in Sonoma County is very similar to that identified for Napa and Marin counties. Much of the area is rural, with small community centers, and little industrial development. The Geysers, a major hydrothermal power generation facility owned and operated by the Pacific Gas and Electric Company and which uses and generates considerable quantities of hazardous materials, is located in a fairly remote area in the northeastern part of the county. The spill record shows few incidents, with those clustered around the main highway.

There is a continuous transportation corridor through Sonoma County adjoining Marin County. Highway 101, the Southern Pacific Railroad and a natural gas pipeline follow this corridor. Some transfer of hazardous material between the Bay Area and the northeast counties probably occurs through this corridor, although Highway 5 through the California Central Valley provides the major link with the north.

Sonoma County is well known for its wineries. The wine industry does deal with some hazardous material and a significant spill of wine could adversely affect an aquatic habitat. The Sonoma Valley also overlies a groundwater basin possibly subject to contamination in the event of a spill. The Russian River, the major water supply for the area, parallels the main transportation routes and can carry hazardous materials into the region from spills occurring upstream of the county.

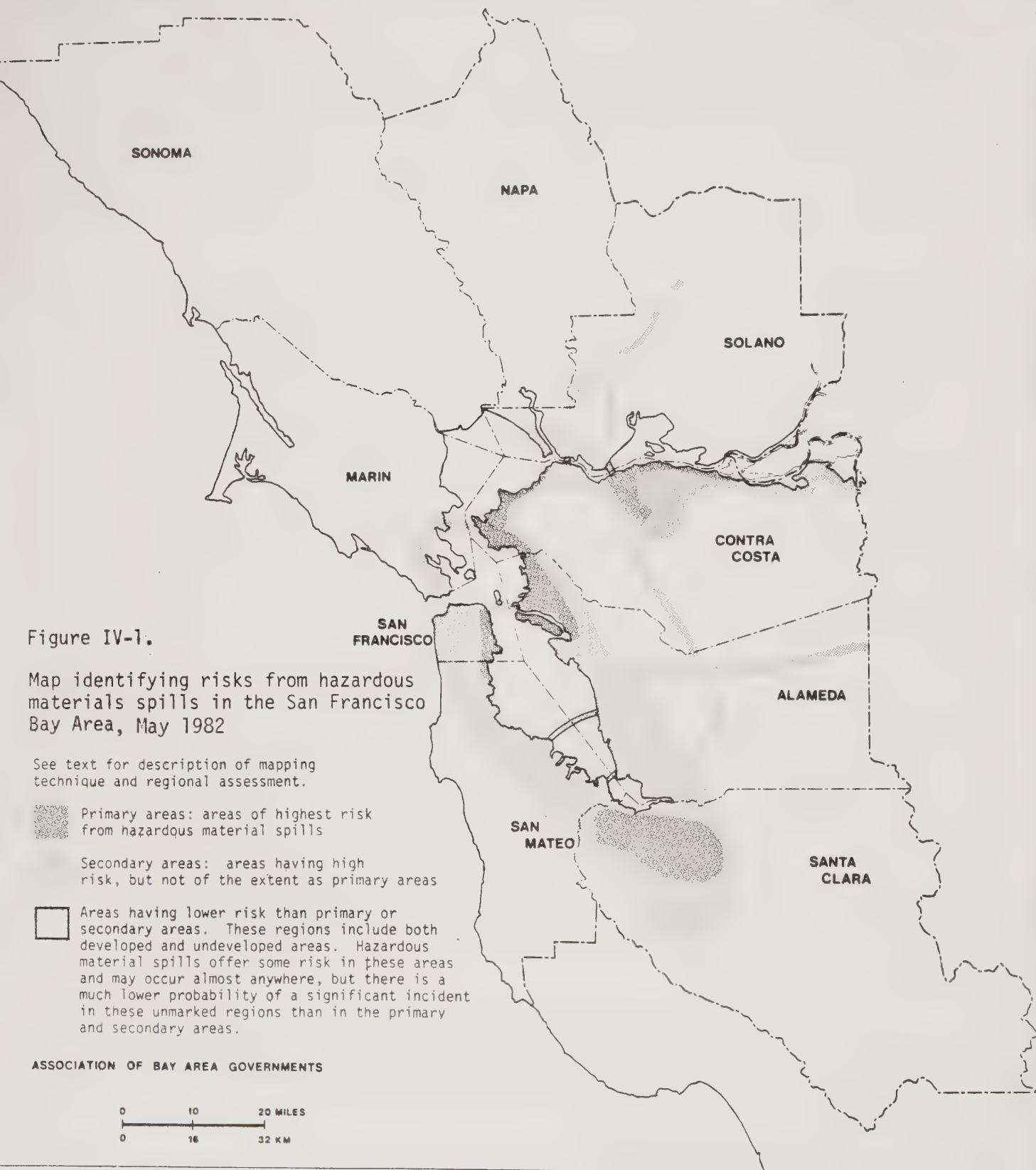
SUMMARY AND REGIONAL OVERVIEW

The risk from hazardous material spills has been assessed for the San Francisco Bay region based upon the locations of critical industries, key transportation corridors and facilities, the prior incidence of spills, population density and projected growth, and the vulnerability of surface water and groundwater. This assessment has been performed primarily on a county-by-county basis. However, it is also important to consider the entire region as a single entity, for problems existing in one county can have serious impact on others.

Similarly, in planning for spill prevention and response, county borders should not necessarily be used as fixed guidelines. Response plans and equipment might be employed across county lines, reflecting industrial, population and geographic features rather than political boundaries.

Figures IV-1 and IV-2 have been prepared to summarize the information presented in this chapter. While only gross boundaries and classifications can be shown on this figure, its purpose is to show the interrelationships of critical areas among the different counties and to provide a regional perspective.

Four major areas have been identified as offering the highest risk from hazardous material spills. While the unique features of each area have been discussed in the county-by-county narrative, all these areas



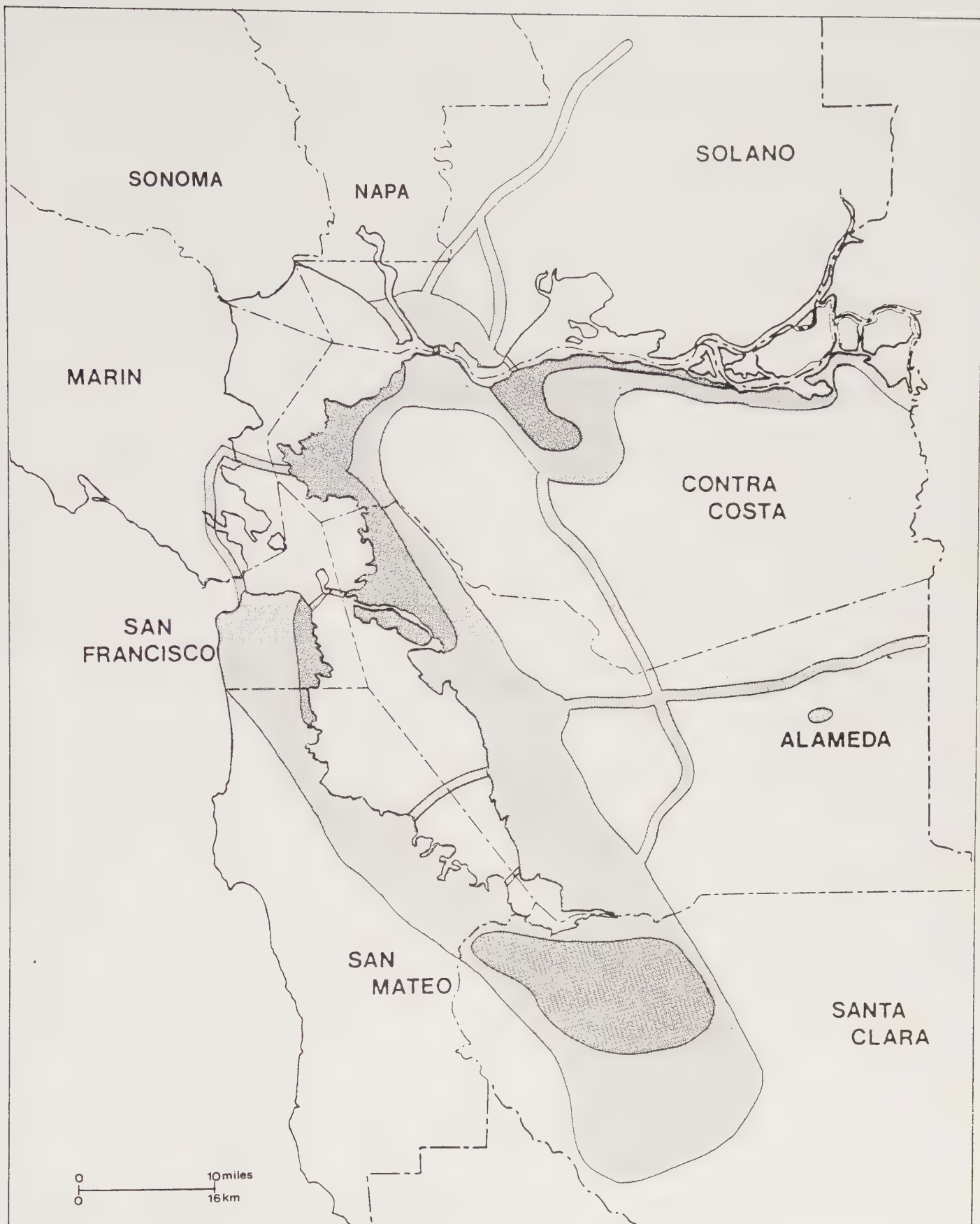


Figure IV-2. Expanded map identifying regions of highest risk from hazardous material spills in the San Francisco Bay Area. See Figure IV-1 for key.

have a high concentration of both population and hazardous materials from fixed sites and transportation corridors. These areas also have been shown as principal sites of past spills in the Bay Area. Generally surrounding these critical locations are areas offering substantial risk from spills, although not of the magnitude of the primary areas.

The risk at these secondary areas comes from a combination of their proximity to the primary areas, the population clusters neighboring the primary industrial areas, the transportation of hazardous materials through the areas, the industrial development within the area, and often the risk to water supplies from hazardous materials following a spill. While the factors for delineating a primary and secondary area are basically identical, the primary areas are strongly associated with more of the risk factors, or show greater concentrations of population, materials and spills than are apparent in the secondary areas.

These critical regions generally form a strip bordering the south and central bay. The most critical areas consist of east San Francisco extending into San Mateo County, the Silicon Valley area of Santa Clara County, in the east bay extending from Alameda through Rodeo, and a small strip encompassing Martinez and Concord extending along the shoreline to Antioch. The north bay counties generally have a much lower risk from hazardous material spills, although not precluded from experiencing a significant incident.

In observing the high risk areas throughout the Bay region, it is appropriate to consider the nature and types of spills commonly found in the Bay Area. In examining the spill data, the following general tendencies were observed:

- o The data base was very sparse and inconsistent regarding the reporting and recording of spill incidents.
- o On the average, approximately two spills were reported daily for the Bay Area.
- o Over 50% of the recorded spills occurred during truck transit while about 25% occurred on-site.
- o The majority of the recorded spills, 68%, were reported from land, with 28% reported on water.
- o Petroleum products constituted the largest category of spill incident, with approximately 62% of all recorded spills some type of petroleum product.
- o The majority of the recorded spills were relatively small, with over 50% of the recorded incidents involving less than 50 gallons.
- o Most of the recorded spills, approximately 72%, occurred during normal working hours.

- o There was a greater likelihood of a recorded spill occurring during a rain than during a dry period.

- o There was no obvious seasonal trend for spill occurrence.

Figures IV-1 and IV-2, in conjunction with the information regarding spill tendencies, provides basic information regarding where, when and what type of hazardous material spill is most likely to occur throughout the region. The county-by-county assessments provide additional information for more detailed planning for specific regions. The inventories and materials lists presented in Volume 2 provide a starting point for community level hazardous material inventories and assessments of local risk. However, it must be emphasized that hazardous materials are located and transported throughout the Bay Area. Spills can occur virtually anywhere at any time. While this study indicates those areas of high probability of occurrence and significant impact, where it would be most efficient to concentrate prevention and response planning activities, adequate response planning must consider the entire region.

RECOMMENDATIONS

Several measures should be taken to improve the data base from which to develop plans for spill prevention and response. The most feasible of these measures are summarized below.

- 1.1 A centralized program should be developed to provide a comprehensive source of spill information. The California State Hazardous Material Incident Contingency Plan, calls for notification of the OES or California Highway Patrol of all spills. It is essential that this plan or its equivalent be successfully enacted to enable the development of a statewide log listing all reported spill incidents.

Any spill data system should contain sufficient detail for accurate characterization of past spills. Data systems should include records of spill time, specific location, material type and quantity, source, responsible party, reason for the spill, responding and notified agencies, cleanup and containment activities, casualties, costs, and the cleanup agency or company. These information categories are included in the prototype report log now in the state plan, but care must be taken to adequately organize collected information to make it available for review.

- 1.2 A "right-to-know" or disclosure law should be considered as a means of requiring sources dealing with hazardous materials to disclose their activities in order to direct prevention planning and illuminate response needs. Any proposed law needs to be examined with respect to practicality and protection of proprietary rights.

- 1.3 Local communities should conduct inventories to more accurately ascertain the types, quantities and uses of hazardous material in their jurisdictions. The regional inventory presented in this study provides a starting point for a more detailed inventory and provides a list of hazardous material that are associated with certain important industry types.
- 1.4 Studies should be conducted to assess the risk of volatile toxic and hazardous air emissions.
- 1.5 Tunnels and bridges offer unusual and serious conditions in the event of a hazardous material spill and should be the focus of a separate study. A study of this nature is particularly appropriate for the Bay Area.
- 1.6 Underground spills and chronic leaks represent a significant source of environmental pollution and threat to human health and well being that has received inadequate attention in past studies of hazardous materials. Problems with underground containment need to be assessed with guidelines enacted and enforced regarding storage requirements and remedial action taken at existing sites where problems are apparent. The work referenced in this report being done by the RWQCB and the DHS appear to be a necessary first step in addressing some of these concerns. (A Hazardous Materials Model Code has been developed which can serve as an example for local management of underground storage facilities. See Chapter V.)
- 1.7 This study should be updated periodically to make available the most accurate information possible. A timely data base is needed to determine appropriate prevention and response plan modifications. This report should also be enhanced by inclusion of additional material that could not be included in this initial study.

CHAPTER V

SPILL PREVENTION

PREVENTION PROGRAMS FOR HAZARDOUS MATERIALS MANAGEMENT AT FIXED FACILITIES

The question of prevention activities at fixed facilities is addressed as a discrete unit, distinct from efforts to prevent incidents during transport. This approach is convenient because programs for proper storage and handling of hazardous materials at a place of business are implemented principally at the local level, whereas a multitude of regulations and enforcement activities at the Federal, State and local levels affect the transportation of hazardous materials.

Existing Programs

Prevention activities at fixed facilities are normally a function performed by the local Fire Prevention Bureau. Fixed facilities is a term used to include businesses, industries or any public site (e.g., schools, hospitals...) where hazardous materials are present. The term does not include shipping yards, truck terminals and other transfer stations. The quantities and mobility of materials moving through such facilities require a different type of program than that described here. Transfer stations are addressed in the following section on transportation-related prevention activities.

A sample survey of local fire departments was conducted to assess the present level of effort directed at hazardous materials management. General questions were asked about permits, inspections, inventories, enforcement procedures and training. Table V-1 is a summary of the results.

The survey revealed that very few departments have programs that emphasize safety concerns associated with hazardous materials. Rather, the majority (56%) of inspections focus on fire hazard only. Twenty-two percent do not even perform routine inspections. Almost 70% of the fire departments do not compile inventories of hazardous materials. While 70% of the cities surveyed have adopted the 1979 edition of the Uniform Fire Code (UFC), giving them the authority to issue permits, inspect, and cite violators, less than 20% actively enforce the Code (15% issue permits, 11% include hazardous materials inspection, 11% require inventory, 15% levy fines). Training is also directed at traditional fire prevention and fire suppression techniques. And efforts to inform the public about the hazards and proper precautions are almost nonexistent; 7% conduct public education programs.

Innovative Programs

The cities of Sunnyvale and Santa Clara have adopted the UFC through local ordinances, and initiated inventory and inspection programs linked to fire permits. They seek to establish cooperative relations with local industry, to provide advice and engage in education efforts, and to improve storage, handling and emergency preparedness. Expertise is provided by chemists or specially trained fire prevention personnel.

TABLE V-1. EXISTING FIRE DEPARTMENT PREVENTION FACILITIES*

<u>Prevention Activity</u>	<u>Percent Responding Yes**</u>
I. Inspections	
o annually	11
o other frequency	7
o depends on hazard	19
o not done	22
o as part of fire prevention inspection	56
II. Inventories	
o annually	11
o other frequency	11
o depends on hazard	22
o not compiled	67
III. Enforcement	
o authority	
- Uniform Fire Code	70
- local Fire Code	33
- other ordinances/codes	19
o jurisdiction	
- inventory	11
- hazardous materials inspection focus	11
- fire prevention inspection focus	81
- permits	15
- citations	52
- fines	15
IV. Training	
o on-the-job	100
o other informal (speakers, etc.)	48
o special hazardous materials program/ attendance required	7
o special hazardous materials program/ attendance optional	44
V. Public Education Programs	7

* Survey completed January 1982.

** Due to overlap in the questions, the totals in each section do not add up to 100%.

Several other fire departments that have special elements of value to prevention programs include Los Angeles (cross-referenced permit systems), Vallejo and Santa Monica (disclosure ordinances), and San Rafael (a penalty ordinance). Rio Vista and Riverview have specifically identified the storage location of pesticides used in their area.

Recommended Minimum Prevention Program

The basic framework for prevention efforts, directed at the storage and use of hazardous materials at fixed facilities and implemented through the local fire prevention bureau, already exists. A public commitment to these programs is essential in order to upgrade existing programs and reduce the potential for serious injury resulting from a hazardous materials incident at a fixed facility.

Based on the two comprehensive Bay Area programs and the individual special program elements reviewed, an outline of what all hazardous materials incident prevention programs should include is recommended.

2.1 Any prevention programs at fixed facilities should include the following items as a minimum:

- o adoption of the most recent edition of the Uniform Fire Code;
- o enactment of a fee schedule for permits;
- o inventory of hazardous materials and site inspection before permits are issued or renewed;
- o proper hazardous material storage before permit issuance and permit renewal;
- o set penalties for violation of the code;
- o posting of hazard warnings wherever hazardous materials are stored (e.g., National Fire Protection Association 704 system).

PREVENTION PROGRAMS FOR HAZARDOUS MATERIALS MANAGEMENT AT TRANSFER FACILITIES

The application of the minimum prevention program to transfer facilities requires that some modifications be made to fit the situation. Transfer facilities are defined as facilities where cargo moves from one mode of transport to another or one vehicle to another. Ports, railyards, truck terminals and warehouses fall into this category. The crucial distinction from fixed facilities is that storage is only temporary.

As with fixed facilities, the fire marshal retains the authority to inspect for proper storage and building fire safety. However, the temporary nature of storage has two effects on the prevention program:

- o inventories of materials on the site cannot be acquired and kept up-to-date by prevention personnel, and
- o enforcement of violations of storage regulations is difficult, since the situation changes almost daily.

A periodic inventory would not provide the desired information about presently existing hazards associated with materials in a transfer facility. Yet, a continuous reporting system would be impractical and would generate far more information than the industry or the jurisdiction could handle effectively.

Still, concern about the amount of hazardous materials present during an incident would be alleviated if existing information were centralized. Each shipment or container of hazardous material is accompanied by a bill of lading. If information on these bills of lading were available to the fire marshal from the foreman or supervisor, the fire marshal and firefighters responding to an incident would be better informed about potential hazards. This type of inventory list, one that remains on-site and reflects the day's shipments is available at some of the ports and could easily be made available by the large, computerized freight firms. Smaller firms would be able to provide the same information by designating the location where bills of lading should be kept.

Enforcement of violations by traditional methods is hampered by the temporary nature of storage at transfer facilities. The civil injunction might be a useful tool in the case of repeated observations of improper practices. The civil injunction is described in a later section.

Recommendations

- 2.2 It is recommended that the minimum prevention program described in 2.1 be applied to transfer facilities with the exception that inventories not be required.
- 2.3 Local agencies, in the course of prevention and response planning activities at transfer facilities, and in consultation with the individual facility operators, should designate the location and/or person at each facility where up-to-date information about materials present can be obtained promptly in the event of an incident.

HAZARDOUS MATERIALS DISCLOSURE

The concept of disclosure has become very controversial. Many communities throughout California are debating the topic and trying to write ordinances that satisfy many diverse interests. It is critical for industry and local governments to work together in a cooperative effort to resolve these issues.

The term "public right-to-know" is broadly used to describe legislation which mandates that certain information be made available to certain user groups. More specifically, it calls for industry to disclose the identity and nature of hazardous materials being handled, stored, disposed of, manufactured, or processed to a segment(s) of the public sector. As used here, "public" means the general public, any citizen, while public agencies are referred to by name.

The disclosure process is an essential first step in a community's efforts to evaluate the risks associated with hazardous materials. Once a knowledge of where, what, and how much material is present is gained, planning for response to incidents, and upgraded prevention programs can be effectively focussed at identified hazards.

It is important to recognize at the outset that the needs of individual communities vary significantly. Any model ordinance must therefore be treated not as a fixed document, but rather as a starting point for the process of developing an ordinance that satisfies individual local needs.

A carefully composed model ordinance does have several advantages:

- it provides consistency with existing (and already complex) regulatory systems,
- it subjects industry to uniform laws among local agencies, and
- it provides an example of what has worked or been acceptable elsewhere.

With this in mind, the concept of disclosure, and its usefulness as part of a prevention program is evaluated. The specifics of exactly what chemicals to be targeted, what format to use, etc. are not analyzed. Local jurisdictions will have to make those decisions for themselves. The discussion here concentrates on three basic questions:

- o What is the purpose of disclosure?
- o What information is needed?
- o Who will have access to the information?

Purpose of Disclosure

The purpose of disclosure is to serve as an information-gathering tool for local agencies, elected officials and residents. The different ways in which hazardous materials information is utilized by different groups reveals the very real need for the information and the degrees of "use specificity" and confidentiality which can be included to ease industry's fears. The following are examples of potential user groups and their individual information needs.

Fire officials have a wide range of responsibilities for fire prevention and suppression, as well as protection of the public. Better knowledge of the chemicals in their community, including their properties, storage requirements, potential hazards, quantities present and appropriate response actions greatly improves the safety officers' effectiveness.

Law enforcement officials benefit from having information available on the kinds and volumes of materials in the community as well as their transportation routes. Such information allows for more effective enforcement efforts and design of appropriate prenotification and/or routing programs.

Land use planners can play a significant role in establishing compatible land uses in their communities. General, non-technical information about the amounts and types of potentially toxic materials present at an industrial or business site allows zoning adjustments for future compatible land uses.

Health officials are in need of detailed information about substances which are actual or potential threats to public health. For emergency response, information on acute and chronic effects and proper medical treatment is needed. Without chronic effects data, epidemiological studies are hampered.

The general public is also a potential recipient of information. Many feel there is an inherent "right" for citizens to know about potential hazards in their community. Such public awareness may prevent unnecessary panic in the event of an incident and help alleviate concern about hazardous materials usage. Within the Bay Area there has been vocal support for this broadest interpretation of disclosure.

What Information is Needed

The kind of information to be obtained is another important decision to make before composing a right-to-know ordinance. Needs differ considerably depending on the intended use of the information. Information needs may include type of material, quantity present, storage and handling procedures, and acute and chronic health effects.

Frequently the Material Safety Data Sheets (MSDS) are the reporting form used to disclose the health effects, handling and disposal methods. The required contents of an MSDS are specified in the California Labor Code as part of the regulations implementing the California worker right-to-know law.

The information needs of fire departments include additional items not listed on the MSDS, e.g., quantity present, location and method of storage. The detailed information which response agencies require include maps of storage facilities and other specifics that industry does not want to divulge to the general public. The trend is to make a distinction between the disclosure process and the inspection process: disclosure identifying permitted quantities accompanied by basic health and safety data is maintained in files open to the public; response agencies follow up the disclosure process with inspections by prevention personnel; the additional information gathered by this process is maintained confidentially within the response agency.

The materials for which disclosure is required must be listed in the ordinance. Lists can either be drawn up specially or, more commonly, compiled from the many existing lists issued by DOT, EPA, OSHA or other agencies. Provision to add to the list is important for flexibility in the ordinance.

Who Will Have Access

The question "to whom will the information obtained be made available?" is one of the more controversial aspects of right-to-know legislation. It is controversial because of industry's reluctance to reveal detailed information about their operations to the public. The

exemption of trade secrets from disclosure can be provided to protect businesses in the marketplace. However, there have been cases where this exemption has been abused. The California worker right-to-know law carefully defines what the term means and provides confidentiality guarantees for trade secrets. Recent court case law shows a definite preference for disclosure; for example, while a formula may remain secret, the health effects data must still be revealed.

There is a clear difference between "public right-to-know" and disclosure ordinances. The Hazardous Spills Task Force entered into lengthy discussion on the differences of the two types of ordinances. It was the consensus that some type of disclosure is necessary to provide emergency response agencies with necessary information to respond to incidents in a safe manner. The Task Force did agree that the extent of disclosure is a local political issue which is to be addressed by each jurisdiction. The ordinances discussed are examples only and are not endorsed by the Task Force.

Hazardous Material Disclosure Ordinances

The Governor's Office for Toxic Substances Control has drafted a model "Hazardous Materials Disclosure Ordinance" which is presented in Appendix A. This model has been widely circulated throughout the Bay Area and California. Other ordinances are available from the cities of Vallejo, Santa Monica, Cincinnati, Ohio and Philadelphia, Pennsylvania. The letter of introduction to the Governor's model highlights several points:

- o The ordinance attempts to provide the basic information needed in common by firefighters, health officials, planners, elected officials and residents in one comprehensive format.
- o The ordinance builds on existing systems of toxic substances disclosure: the California "worker-right-to-know" law and the hazardous waste manifest system.
- o The model is intended to provide some structure to initial efforts by local officials to obtain the information they need regarding hazardous materials.

The model hazardous materials disclosure ordinance requires that disclosure forms be filed as a condition of business license renewal (Section 130). Hazardous substances covered by the ordinance are listed by reference (Section 110[g]). Other materials may be added by the city health officer (Section 120). Exemptions to disclosure include consumer products, and amounts less than 500 pounds or 55 gallons unless specifically required by the health officer (Section 150). The disclosure form is to be devised by the health officer in consultation with the many other interested parties and include (Section 140):

- o a listing of chemicals used, method of storage, maximum amounts permitted and method of disposal;
- o an MSDS for each hazardous substance used by the industry;
- o a listing of hazardous wastes and methods of disposal and maximum amounts disposed annually, both offsite and onsite;

- o a listing of discharge permits granted for disposal of hazardous materials and the issuing agencies.

Primary responsibility for maintaining files of the disclosure forms is assigned to the city or county health officer. The files are open to the public. Provision for protection of trade secrets follows the same procedure used in the California worker right-to-know law: the industry requests that the information be classified as a trade secret; the health officer determines the validity of the requests (Section 180). The user can appeal a refused request and submit new information in support of secrecy; the health officer reconsiders the determination and finally, if turned down again, a legal process can be initiated by the user.

This model ordinance can serve as a disclosure process without being associated with the minimum prevention program for fixed facilities (recommendation 2.1). However, efforts to streamline agency programs dictate a coordinated approach. Usage of the same disclosure process by all communities is clearly in the interest of industry because it ensures uniformity in regulation. It is also in the interest of public agencies since it facilitates coordinated response planning efforts among jurisdictions, especially among the cities within a county.

The amount of information collected under a right-to-know ordinance is substantial. Communities considering its adoption should be aware that data management capabilities are necessary in order to be able to process the information and make it available in a cost-effective manner.

A 150-page handbook on toxic substances disclosure ordinances has been released by Golden Empire Health Systems Agency, a health planning organization in Sacramento. The handbook is designed to assist local communities in determining their need for information on the hazardous materials used and handled in their areas. The handbook is available from Golden Empire Health Systems Agency, 827 7th Street, #441, Sacramento, California.

Recommendations

- 2.4 In stressing the need for recommendation 1.2, local governments should consider the following disclosure ordinances as examples: the Governor's Model Hazardous Materials Disclosure Ordinance (presented in Appendix A), and those of the cities of Santa Monica, Vallejo, Cincinnati, Ohio and Philadelphia, Pennsylvania.
- 2.5 The issue of public right-to-know is a political decision to be addressed by each jurisdiction.

HAZARDOUS MATERIALS MODEL CODE

No code presently exists that adequately handles the particular concerns of hazardous materials storage other than flammables. The Santa Clara County Fire Chiefs' Association is developing a Hazardous Materials (Hazmat) Model Code that specifically addresses the technical aspects of storage of hazardous materials and describes a comprehensive hazardous materials management program.

The goal of the Model Code is to define a system by which industry and local government can work together to protect the public health and safety and prevent environmental pollution by hazardous materials. The Model Code has been written with the active participation of state agencies to ensure coordination in regulations. Continued legal consultation, public comment, and industry involvement promise to produce a document that satisfies government agencies and is acceptable to industry and the community. The final draft of the Model Code is available from Santa Clara County Fire Chiefs' Association, c/o Central Fire Protection District, 3071 Driftwood Drive, San Jose, CA 95128.

Elements of Management Program

The Hazmat Model Code is a technical document: it contains far more detail than can be described here. However, the concept of a model code for storage of hazardous materials is valuable. And the Model Code directly addresses three major elements of the minimum prevention program recommended previously:

- inventory and inspection,
- permitting to assure proper storage,
- posting hazard warnings.

It offers a comprehensive approach to spill prevention and response planning.

The Hazmat Model Code contains detailed provisions in the following areas:

- o a hazardous materials inventory is required, including MSDS,
- o permits are required for storage of regulated materials,
- o city inspections must be allowed,
- o a hazardous materials management plan must be prepared and include these items:
 - precautions taken for storage and handling
 - general site plan
 - detailed storage facility plans
 - monitoring program for storage facilities
 - security systems
 - posted hazard warnings
 - a self-inspection program and schedule
 - employee training
 - emergency equipment and
 - contingency plans
- o disclosure of all information except two items is allowed; the detailed storage facility plans and security systems are to remain confidential.
- o new storage installations above and below ground must meet certain performance standards, including primary and secondary containment,

- o existing installations must be monitored for leakage and upgraded to new standards if leakage is detected,
- o unauthorized discharges must be reported to the city,
- o timely repair or replacement of leaking facilities is specified, and
- o proof of insurance and financial responsibility is required.

"City" means the local entity enacting the model ordinance. The controlling agency may differ for different jurisdictions.

The Hazmat Model Code contains disclosure provisions along the lines of the Governor's Model Disclosure Ordinance described in the previous section. The information gathered under this code is more extensive than under the Governor's model because it includes hazardous material management plans, monitoring records and more. All the information, with two exceptions, is available to the general public: storage facility maps and security system details are confidential within the inspection agency.

Recommendation

- 2.6 The Hazmat Model Code from the Santa Clara County Fire Chiefs' Association should serve as a model for developing local comprehensive hazardous materials management programs.

ZONING RESTRICTIONS AS A PREVENTION TOOL

The idea of using land use restrictions as a planning tool to ensure the separation of hazardous materials users from sensitive population centers has only recently received serious consideration. In response to the growing number of cases of on-site incidents threatening the health and safety of adjacent communities either through aerial releases or underground leakage, several cities are considering zoning changes to reduce the hazard in the future.

All jurisdictions, whether they be cities or counties, face widely different situations: differences in industrial density, location and age of industries, differences in the types of materials being used and the types of danger they present, and differences in the way they regulate land use make it impossible to present one solution to the problem of land use and hazardous materials management.

Two types of procedures have been implemented as initial steps toward zoning restrictions. One approach expands use of conditional use permits; the other provides coordination between fire prevention and building permit review. In this way, fire prevention's experience with hazardous materials can be applied during the review process. It is understood that prevention work by the fire department is and will continue to be one of the most important activities in hazardous materials management.

Recommendation

- 2.7 As the disclosure process and continued inspection and mapping of information provide a better understanding of the situation, an effort should be made to evaluate the usefulness of zoning restrictions as a tool for hazardous materials management.

ENFORCEMENT OF HAZARDOUS MATERIALS TRANSPORTATION REGULATIONS, EXCLUDING ROUTING

This section discusses enforcement activities under the federal Hazardous Materials Transportation Act (HMTA) and associated state regulations. There are two aspects to enforcement of the transportation regulations: first, on-terminal inspections are required for licensing, and second, citations are issued for violations observed on roadways.

On-terminal inspection programs are a federally and state mandated, prevention-oriented type of enforcement activity. Such programs are similar in intent to inspection of fixed facilities by local fire prevention personnel: to prevent incidents by assuring compliance with safety regulations. Discussion is directed at identifying the potential for local involvement in these activities.

Inspection programs contrast with enforcement activities in which citations are issued for violations observed by law officers in the course of routine patrol activities. The authority to enforce known violations of hazardous materials regulations is available to all law enforcement agencies. The potential for expanding the local role is described.

Regulatory Environment

Numerous federal and state agencies are responsible for enforcing a broad range of regulations directed at the transportation of hazardous materials. The laws that authorize these enforcement activities are numerous and complex and include the Hazardous Materials Transportation Act, the Resource Conservation and Recovery Act, the Water Pollution Control Act, and the California Hazardous Waste Control Act to name a just a few. The basic intent of the laws and regulations is to improve safety, clearly a prevention function.

Table V-2 presents a brief summary of principal federal, state and local agencies engaged in enforcement activities. The Federal Department of Transportation (DOT), the California Highway Patrol (CHP) and the local fire department each have jurisdiction. At marine shipping terminals the U.S. Coast Guard is the authorized enforcing agency. The Federal Railway Administration enforces the regulations for rail traffic. The CHP is the state agency authorized to enforce federal and state regulations at truck terminals and on the state highways. The Federal Highway Administration retains a limited role on the highways. The fire marshal has the responsibility for fire safety at all transfer facilities. Local law enforcement agencies can enforce violations of federal and state laws that occur off the highways.

**TABLE V-2. HAZARDOUS MATERIALS TRANSPORTATION: AGENCY, JURISDICTION,
AND PREVENTION ACTIVITIES SUMMARY , January 1982**

V-12

	<u>Agency</u>	<u>Jurisdiction</u>	<u>Prevention Activities</u>
FEDERAL	FAA: Fed. Aviation Admin. (SF Airport Security)	air transport	inspects aviation equipment, facilities and cargos for compliance with haz. mats. safety regs; limits quantities, types of haz. mats.; approves carriers
	FRA: Fed. Railroad Admin.	rail transport	inspects railroad equipment, facilities and cargos for proper placarding, shipping papers, crew notification, etc.
	Coast Guard	navigable waters SF bay and tributaries waterfront facilities	issues licenses for officers (requirements include haz. mats. knowledge); inspects US flag vessels for proper stowage, labelling, papers, etc.; inspects paperwork on foreign flag vessels/observes for compliance with US regs; determines proper vessel type for materials; vessel traffic service helps prevent collisions.
	FHWA: Fed. Highway Admin.	motor carriers/shippers involved in interstate commerce or intrastate shippers/carriers of hazardous substances	helps establish routes; advises on design/construction of containers; education; inspections/audits on-terminal and on-highway.
	OPS: Office of Pipeline Safety	pipelines	inspects pipeline designs, materials, construction; establishes criteria for types of haz. mats. for pipelines; outlines proper piping conditions.
STATE	EPA: Environmental Protection Agency	inland waters for oil spills	inspects oil facilities
	CHP: Cal. Highway Patrol	highway transportation	inspects carriers for compliance with proper stowage, transportation, documentation; specifies routes, times for transportation of certain materials; new: licensing, inspection of transporters of haz. mats. (500 lbs. or more)
	DHS: Cal. Dept. Health Service:	hazardous wastes radioactive materials	issues registration for transport; inspects; technical assistance re: planning/operation of facilities; issues permits for use/operation of waste facilities.
	State Fire Marshal	cargo and portable tanks for flammable/combustive liquids in excess of 120 gals.	inspects; certifies biannually; registers.
	Cal/OSHA Div. Industrial Safety	liquid petroleum gas cargo tanks (except portable tanks/cylinders) pressure vessels	inspects and issues permits; reviews fabrication of pressure vessels and inspects.
LOCAL	RWQCB: Regional Water Quality Control Board	protection of water quality	oil spill prevention during transfer operations
	Police/Sheriff Depts.	tank trucks carrying certain flammables, explosives and other chemicals	limited routing obtained through ordinances; varies widely among cities; cite violators under HMTA.

Focus on Motor Vehicle Transport

In the San Francisco Bay Area, the U.S. Coast Guard actively enforces the federal regulations affecting marine shipments. A telephone survey of local ports revealed that the current level of enforcement is considered adequate: the U.S. Coast Guard inspects for proper stowage; the Port Fire Marshal is notified of the arrival of hazardous cargo and designates a storage location on the docks. Cargoes, such as explosives, presenting a more serious hazard, require the issuance of a special dangerous cargo permit prior to handling at a waterfront facility. These permits are signed by the Coast Guard, the local Fire Marshal and the shipper. In a recent study of spillage of petroleum during loading and unloading, the Regional Water Quality Control Board concluded that self-policing has reduced spillage to the point that additional regulations are not necessary.

By contrast, several serious incidents involving truck transport of hazardous materials have occurred this year. The risk assessment noted that more than 50 percent of hazardous materials spills occurred during motor vehicle transport. Thus, the major emphasis for discussion has been means for increasing the safety of transport by trucks through inspection programs.

On-Terminal Inspection: State Role

The California Highway Patrol enforces federal and state regulations governing transportation of hazardous materials by motor vehicle. Enforcement involves an inspection program, using civilian personnel, associated with licensing requirements for transporters of hazardous materials. This authority cannot be delegated to local personnel. The applicable federal law is the Hazardous Materials Transportation Act: Part 107 and Parts 171 through 179, Title 49 Code of Federal Regulations (49 CFR) are the portions of the HMTA that relate to motor vehicles. These are adopted by reference in Section 1160.2, Chapter 13, California Administrative Code.

Two California laws extend the CHP enforcement activity beyond the HMTA. SB 825 (Chapter 1097, Statutes of 1980) requires licensing of haulers and inspection of vehicles and containers used to haul hazardous waste. The Department of Health Services administers the licensing program, the CHP performs the inspections. Inspection work began in early 1982. AB 1012 (Chapter 860, Statutes of 1981), provides for licensing of all hazardous materials transporters by the CHP. The law clarifies the definition of hazardous materials to include hazardous waste and explosives. This licensing and certification process began July 1, 1982.

Inspection under HMTA includes condition and maintenance of the vehicles, container integrity, proper documents, proper placarding and driver training. Upon satisfactory completion of the inspection, a compliance report and license to operate is issued. If violations are noted, a statement is written by the inspector and signed by the transporter agreeing to correct the violations by a specified date. If compliance is not achieved, a complaint is filed with the District Attorney.

The CHP prefers to require training in the applicable laws rather than imposing fines because it is believed most violations result from lack of understanding of the regulations. However, AB 1012 does authorize the CHP to temporarily suspend the license of a transporter to haul hazardous materials if the CHP believes this action necessary to prevent "imminent and substantial danger to the public health."

The new California regulations increase the inspection work required of the CHP considerably. In the San Francisco Bay Area, the Motor Carrier Division of the CHP currently employs 19 civilian personnel to perform on-terminal inspections. The CHP has been providing additional training to its employees and also plans to hire more inspection staff as revenues from the licensing program permit. More staff will be required to adequately handle the workload.

On-Terminal Inspection: Local Role

Presently the role of local fire and police agencies at transfer facilities includes enforcement of local building codes and fire safety regulations but not transportation regulations. Civilian CHP personnel enter to perform their on-terminal inspection activities required by the HMTA and associated regulations. The following questions were addressed:

- o Is existing enforcement of the transportation regulations by the CHP adequate?
- o Is there a need for greater local involvement with on-terminal inspection programs?
- o Can and/or should local agencies:
 - assist in inspection?
 - conduct follow-up of violators?
 - provide training for violators?
- o What legal process(es) would be necessary to arrange for coordinated inspection efforts between State and local agencies?

While the frequency of inspection by the CHP may not be as often as local enforcement personnel desire, local involvement is not a viable alternative for several reasons:

- o Transporters operate in more than one city. Repeat violators can be detected more easily by a statewide inspection program.
- o Participation in inspection, follow-up of violators and compliance training could not easily be assumed by local prevention personnel. These personnel often are not familiar with the HMTA and would require training to enable them to perform the inspections.

- o Local law officers do not have the authority to enter a facility and perform these inspections without first obtaining a search warrant for a specific, suspected violation.
- o Local involvement in the inspection programs associated with enforcement of the HMTA would require state legislative action to delegate authority from the responsible State agency (CHP) to appropriate local agencies. Alternatively, a local ordinance could be enacted, adopting the relevant Federal/State statutes and setting up an inspection and registration program parallel to the CHP program. Such an effort has not been made by any local law enforcement agency to date and could be subject to legal challenge unless very carefully formulated.

Local Enforcement

While serious limitations exist with respect to a local role in the on-terminal vehicle inspections required for licensing, the authority to enforce violations observed on the streets is not abridged. Local law officers can issue citations for violations of the Federal HMTA just as they do for the California Vehicle Code and local laws. The only disadvantage is that presently officers may not be familiar with the HMTA and thus require training to recognize the violations.

Another legal tool available to local jurisdictions is the civil injunction. The civil injunction is described in more detail in a later section. Essentially, an injunction can be applied to situations in which local officials recognize dangerous and illegal activity, regardless of the level of government that traditionally regulates that situation. As an example, if a fire inspector, in the course of repeated fire safety inspections, notes that a shipper routinely stores hazardous materials improperly, an injunction can be obtained from the District Attorney. A hearing can take place as soon as ten days after the injunction is issued. The court can devise appropriate means to remedy the situation, such as requiring additional training for personnel, rather than simply imposing fines.

A valuable addition to local law enforcement abilities would be notification of the District Attorney by the CHP of repeat violators. One of the advantages of the statewide inspection program is that CHP will be able to identify repeat violators. Identification of these transporters to local agencies would permit focussing enforcement efforts toward known violators and make more effective use of the civil injunction.

Recommendations

- 2.8 The California Highway Patrol should continue its effort to increase inspection frequency and to identify repeat violators of the hazardous material transportation regulations.
- 2.9 Local law enforcement officers should be trained in the hazardous materials transportation regulations so that they can cite violations on city streets.

ROUTING

This section summarizes federal, state and local roles in designating highway routes for transportation of hazardous materials. Generally speaking, the state and federal governments can preempt local authority on state and federal highways. However, individual communities nationwide have begun establishing routes specifically for transportation of hazardous materials both on and off highways within their jurisdiction. A significant role for local communities in the Bay Area does exist, but further study is needed to identify where routing would be useful and feasible.

Federal Role

The U.S. DOT has preemptive authority over local and state routing regulations when such regulations either

- o conflict with federal regulations on the transportation of hazardous materials or
- o interfere with interstate commerce.

With respect to routing, this authority has been exercised primarily with explosives and radioactives. According to federal regulations (49 CFR 397.9), vehicles transporting hazardous materials must avoid populated areas if a practical alternative route is available.

State Role

In California, all state and federal highways are under the jurisdiction of the Department of Transportation (Caltrans) with enforcement conducted by the CHP. While California has adopted major portions of the federal Hazardous Materials Transportation Act (49 CFR), the section requiring alternate routes has not been adopted. Three special cases do exist:

- movement of explosives is regulated under Title 13, California Administrative Code,
- transport of radioactive materials is regulated under Vehicle Code Section 33000, which references the U.S. DOT ruling HM-164. HM-164 is a new federal ruling regulating shipments of high level radioactive materials. The CHP has been developing a statewide routing plan under this ruling. The regulations have not yet been finalized. Public hearings are in progress.
- recently enacted legislation (SB 2066, AB 2457) allows Caltrans to designate routes through tunnels and on bridges, as explained below.

Caltrans operates all the major bridges in the Bay Area except the Golden Gate Bridge. Transport of explosives, corrosives and flammables across the bridges used to be regulated. In 1979, the restrictions were lifted with the exception that transport of flammables and explosives on the Bay Bridge remains prohibited. The Golden Gate Bridge District

operates the Golden Gate Bridge, where placarded vehicles are escorted across upon request; apparently few placarded shipments move by this route. There were no formal restrictions on transport through the Caldecott Tunnel until Senate Bill 2066 was passed, although the major gasoline refiners directed their drivers to avoid the tunnel.

The two bills listed above were motivated by the Caldecott Tunnel accident and the subsequent report by the Caltrans/CHP Special Task Force, Task Force Report on Transportation of Gasoline and Other Flammable Materials, May 1982 (summarized in Volume 3).

Senate Bill 2066 (Chapter 1140, Statutes of 1982) places an immediate ban on movement of vehicles carrying explosives flammables, LPG and poisonous gases through the Caldecott Tunnel except between the hours of 3 a.m. and 5 a.m.

Assembly Bill 2457 (Chapter 1255, Statutes of 1982) amends Section 21109 of the Vehicle Code (described below under Local Role) to require Caltrans to evaluate the acceptability of a local ordinance regulating movement of vehicles displaying flammable placards in tunnels and on bridges. Section 34150 is added to the Vehicle Code to allow Caltrans to adopt its own regulations concerning flammable liquids transport. Assembly Bill 2457 also revises tank vehicle inspection procedures.

Local Role

Local authority to regulate movement of vehicles depends on the type of road. On city streets, off state highways, a city is free to designate routes. Truck routes through town are often designated by posted signs recommending the safest route. Weight limits can be posted. The fire code can specify routes or require permits for transport of flammables and other hazardous materials. On highways, the authority to route falls in two categories: tunnels and bridges and other roadways.

In tunnels and on bridges, Section 21109 of the Vehicle Code gives local authorities the initiative in regulating transport. Off-highways, an ordinance or resolution and posted signs are sufficient. Oakland has an ordinance prohibiting the transport of "flammable liquids, explosives and other dangerous articles" through the city's Posey and Webster Street tunnels connecting Oakland with Alameda. On-highways, written approval by Caltrans is required. The amendments to Section 21109 in Assembly Bill 2457 specify the procedures that Caltrans must follow when a local ordinance affecting a tunnel or bridge is enacted. These amendments pertain only to ordinances that regulate vehicles displaying flammable liquid placards.

The new legislation defines a tunnel as an enclosed roadway at least 300 feet long. In the Bay Area, the following tunnels have been identified as examples meeting this length requirement. This list does not include all qualifying tunnels in the region:

- Waldo Tunnel, Marin County,
- Caldecott Tunnel, Contra Costa/Alameda Counties,
- Webster Tube, Posey Tube, Alameda County; already restricted by city ordinance (not state highways),
- MacArthur Boulevard undercrossing, Alameda County,

- Yerba Buena Tunnel (Bay Bridge), San Francisco County; flammables and explosives already prohibited,
- Branch East undercrossing, Broadway Tunnel and Geary Street Tunnel, San Francisco County (latter two not state highways),
- Route 1/280 separation and South Connector undercrossing, San Mateo County.

Local ordinances could be passed regulating hazardous materials transportation through these tunnels. For all those on state and federal highways (exceptions noted), Caltrans would be required to study the proposed restrictions and accept or reject them. It is significant that Section 21109 gives local authorities the initiative and requires the state to follow through.

The authority to route on other portions of roadways is less clear. The law does not state that cities can propose routes on state highways within city limits and seek Caltrans approval, as they can for tunnels. Nor does the law explicitly prohibit local ordinances regulating transport on highways. Presumably, as long as routing plans do not interfere with interstate commerce or conflict with federal regulations, local actions can designate routes and avoid preemption.

Guidelines for Developing Routing Plans

Routing can be an effective tool in protecting the public from transportation accidents involving hazardous materials. While it is true that the federal and state government can preempt local regulations, and have for explosives and radioactives, the potential for carefully thought out local plans to succeed does exist. In California, Section 21109 of the Vehicle Code provides the authority for communities to regulate transport in tunnels and on bridges including those along state highways.

Transportation of hazardous materials can be regulated by:

- prohibiting them from a particular area (e.g., downtown) or particular streets,
- designating a specific route for their travel,
- restricting their movement to certain hours, or
- some combination of the above.

To avoid preemption by state or federal authorities, routing plans must:

- provide alternate routes,
- not unduly restrict commerce, and
- not simply redirect the traffic to other locales. The more cooperative a routing program is on a larger geographical basis, the more likely it is to survive a preemption challenge.

The U.S. DOT has published a manual entitled Guidelines for Applying Criteria to Designate Routes for Transporting Hazardous Materials that can serve to design acceptable local routing plans.

The widespread use of hazardous materials, necessitating deliveries throughout an area, may make routing a difficult prospect on local streets (off-highways). However, very little detailed information is available regarding movement of placarded vehicles within individual communities. Studies of local vehicle movement may help identify commodities and/or routes to be targeted for routing plans.

Summary

- o The movement of hazardous materials on state and federal highways is regulated by Caltrans, the CHP and the U.S. DOT. This preemptive authority has been exercised primarily with explosives and radioactive materials.
- o Section 21109 of the California Vehicle Code specifies procedures that allow local governments to designate restrictions on transport through tunnels and over bridges, even if these roadways are state highways.
- o Considerable latitude for local action exists on city streets. However, due to lack of information, a detailed assessment of placarded truck movement may be necessary to identify potential routing programs. When routing needs are identified, local plans could be devised by following the federal guidelines that would satisfy state and federal authorities as well as local needs.

Recommendation

- 2.10 Routing programs should be considered as a local prevention tool. However, there is a need to assess local movement of hazardous materials to identify the potential for such programs. Proposed routing programs should follow the guidelines presented.

SAFETY IN RAIL TRANSPORT

The California Public Utilities Commission (PUC) is considering the adoption of regulations for the movement of hazardous materials by rail within the State of California. The Commission requested input from local agencies and interested parties about the perceived need for additional regulations and, in particular, whether sufficient information is presently available to emergency responders to allow adequate planning and preparedness for response to rail incidents involving hazardous materials.

The risk assessment in Chapter IV shows rail lines parallel to the entire San Francisco Bay shoreline, extending inland along the major valleys and highways. Counts of railcars carrying hazardous materials were obtained from Southern Pacific and Santa Fe railroads. The maps indicate that Contra Costa and Solano County rail lines carry a greater proportion of hazardous materials by railcar than the other counties.

However, detailed information on rail traffic is often not obtained by individual communities. In the sample survey of prevention and response capabilities in the region, the majority of the response agencies interviewed expressed serious concern about their lack of knowledge of the materials transported through their jurisdictions.

Oregon State Regulations

As an example of another state's actions, the Oregon PUC has adopted rules that require the following:

- o an initial annual inventory compiled by the railroads and reported to local emergency response agencies indicating the types of hazardous materials transported through their jurisdiction by DOT Hazard Class, as well as other information pertinent to emergency response;
- o annual reporting thereafter of estimated changes in quantities and kinds of shipped materials;
- o every fifth year, a complete revised inventory;
- o advance notification of each shipment of Class A Poisons and Class A Explosives to local emergency response agencies;
- o radio compatibility between train crews and dispatchers;
- o visual inspection by railroad employees of Explosives A, Flammable Gas, and Poison Gas placarded cars which remain in a yard or station for more than two hours;
- o notification of State Emergency Management Division of any incident of a magnitude requiring notification of Federal authorities.

Discussion

Four ideas for possible new regulations were discussed:

- inventories,
- coordinated response planning,
- prenotification for certain materials,
- notification of extended storage time.

Inventories of transported materials would provide a point of departure for emergency response planning. Coordination of response plans with rail companies would enhance the effectiveness of all personnel involved in an incident. In addition, particular materials for which notification is desirable and practical can be identified using inventories.

A special concern about temporary storage at rail yards was expressed: local response agencies often have no knowledge of storage at rail yards caused by unexpected delays or other unusual circumstances. The proposal that rail companies could be required to notify local emergency response agencies of prolonged storage of any (or particular) placarded materials was also discussed.

Inventories

Rail transport information is available on request from the major rail companies. A local agency seeking such information need only contact the rail company. Regulations requiring routine reporting to all agencies along a route would generate excessive paperwork which would be burdensome to both rail companies and response agencies, without necessarily serving a useful purpose. Voluntary reporting was considered preferable to a more formal required system.

Coordinated Response Planning

New regulations could require response plan development between rail companies and communities. Plan development is indeed very important. However, planning must occur at the local level, hence, the process is best served by maintaining local control over the planning effort. The Task Force believes response planning can and should occur without additional state regulation. In addition, members expressed great appreciation of and continued need for the training provided to local response personnel by rail companies. It provides a valuable and effective prevention tool.

Prenotification

Advance notification is valuable when the need for evacuation may arise. However, unless a limited number of commodities are subject to notification, the response agency would receive more information than it could use effectively. Although the concept of prenotification is recognized as potentially useful, notification should be limited to a few specific commodities which would be selected following an inventory process.

Notification of Extended Storage

Notification of the local emergency response agency could be required whenever railcars containing placarded materials are stored in the yard for more than a specified length of time. This concept was thought to be unworkable because of the unpredictable nature of the problem. Direct contact with the rail company consignee was suggested as a way of learning the contents of railcars in temporary storage. Alternatively, the Oregon PUC requires inspection of tank cars containing certain materials whenever they are stored for a certain period of time.

Summary

While existing response planning and preparedness at the local level may not always be what it should be, additional state regulation is not the answer. Locally initiated, cooperative planning efforts, such as are already occurring in some locations, are the preferred approach. The major rail companies in the Bay Area have demonstrated their commitment to local response planning by providing information and training upon request.

Recommendations

- 2.11 No new state regulations should be enacted at this time regarding the movement of hazardous materials by rail.
- 2.12 Local response agencies should contact rail companies individually to develop prevention and response plans as needed in their jurisdiction.
- 2.13 Rail companies should continue their training programs for local government response personnel.

PIPELINE SAFETY

The California Pipeline Safety Act of 1981

The California Pipeline Safety Act of 1981 (AB 911) directs the State Fire Marshal (SFM) to adopt, by January 1, 1983, hazardous liquid pipeline safety regulations for certain designated categories of pipeline in order to implement the Federal Hazardous Liquid Pipeline Safety Act of 1979. The SFM plans to adopt the applicable sections of federal laws and regulations (Part 195, 49 CFR). The regulations will apply to every intrastate pipeline used for the transportation of hazardous liquid substances with the following exceptions:

- o interstate pipelines already subject to 49 CFR,
- o any pipeline owned or operated by a publicly-owned or privately-owned utility not used as a common carrier pipeline,
- o any crude oil gathering line,
- o any oil field flow line, and
- o any pipeline located entirely within a single plant facility.

Gasoline and product lines are subject to these regulations, while natural gas lines for utilities are excluded.

The law directs the SFM to establish a Hazardous Pipeline Safety Technical Standards Committee to inform local agencies and pipeline operators of changes in applicable laws and regulations. The committee is composed of seven members of whom two represent pipeline operators, three represent local fire departments and two are public members.

Provisions of the Act

The bill specifies the installation and maintenance of leak detection and cathodic protection on replaced portions of existing pipelines which normally operate under conditions of constant flow and pressure. Annual testing and inspection of all pipelines not equipped with an automatic pressure relief device is required. Results must be submitted to the local emergency response agency and the SFM.

Pipeline operators are required to provide fire departments with relevant information concerning the as-built location of each pipeline and its operation, including plans for coordination with local response agencies during an emergency.

Fire departments, in turn, are required to provide the pipeline operator with its emergency response plans and procedures. In addition the local agency must compile the following information and maintain it in readily available form:

- o pipeline routes through residential areas,
- o population density along pipeline routes, and
- o soil and other geologic conditions along pipeline routes.

The agency must provide public access to this information, except in situations where release of information would create "an unreasonable risk to public safety or security."

Local agencies are authorized to levy fees from pipeline operators sufficient to cover their costs for required testing and inspection and meeting other requirements of the bill. The State Fire Marshal will receive a portion of these fees.

The State Fire Marshal must be notified of every pipeline break, fire or explosion, and may order closure of a pipeline if it poses a safety hazard.

Local Role

Planning for emergencies involving pipelines transporting hazardous liquids is another aspect of a comprehensive prevention program. These new regulations dictate coordination of response plans among pipeline operators and local response agencies. Details on the regulations and how the programs are to be implemented are not yet available. However, local departments should be aware that these regulations exist; they are another step toward improved community awareness and safety.

Local agencies can begin to compile the pipeline/population density maps they will be required to produce using the maps presented in Volume 2. Planning departments have population data. Public works departments may also have maps of local pipeline networks. Detailed information about pipelines can be obtained from Underground Service Alert (USA). The toll free number to call is 800-642-2444. ABAG has the capability to provide geologic hazard information along pipeline routes, as well as population density data.

Recommendation

- 2.14 Coordinated response planning for pipeline safety as outlined in the California Pipeline Safety Act should be an integral part of hazardous spill prevention.

THE CIVIL INJUNCTION: A LOCAL ENFORCEMENT TOOL

Problem Statement

The problems of law enforcement and assignment of liability start long before a spill occurs. A multitude of Federal, State and local statutes and regulations have been passed concerning the use, manufacture, transport and disposal of toxic substances, all with the intended purpose of protecting public health and safety and preventing spills. Because of the regulatory complexity, jurisdictional conflicts frequently create confusing enforcement policies.

In fact, most enforcement is probably noted by its absence. While the original purpose of the laws is to prevent incidents, enforcement procedures most often react to violations: minimal effort is placed on identifying problem situations before a serious incident occurs. And at that point, costs for cleanup, damages, and prosecution are much higher.

Also, each agency has its own enforcement staff and methods. Citations, by far the most commonly used procedures, are a simple administrative action: fines are levied according to a list of specific violations. Citations are not an effective prevention tool: there is no assurance that repeat violations will not occur. Very few enforcement programs prosecute for crimes, fewer still enforce by civil or injunctive action, although the authority to use both usually exists. Even when a case is taken to court, prosecution is slow: it can take a year or more to settle a case and the penalty finally imposed bears little relation to the hazard created by the situation.

Lack of communication among agencies at the local level and between state agencies and local district attorneys is another hindrance to enforcement. The channels to inform the district attorneys about repeat violators are simply not there. Within local governments, notification procedures between fire, health, police, other inspection staff and the district attorney's office are often informal. Some regulatory programs are not organized to identify repeaters. And certain records and information are held confidential by state agencies, further limiting local access.

This situation makes it difficult to identify those businesses that are creating dangerous situations: these businesses are the potential targets for injunctive action since enforcement by injunction can be an effective prevention tool and reduce the hazard before a serious incident occurs.

A Solution: The Civil Injunction

An enforcement tool with unique advantages available to local district attorneys is the civil injunction. An injunction is an order requiring a person or business either to take certain actions immediately or to stop an activity pending an evaluation of the situation. Issued under Section 17-200 or 17-500 of the Business and Professions Code, an injunction may cite unlawful, deceptive or fraudulent activity or any activity that poses a threat to health and safety.

In a sense, the injunction sidesteps the State and Federal regulatory process and uses a more generic assertion of unlawful activity. It provides a flexible and powerful approach to solving the complex problems posed by hazardous materials usage.

The advantages of the civil injunction are many:

- o It is adaptable to the needs of any violation problem, especially when more than one State or Federal agency or several cities and counties are involved. This is particularly useful in transportation cases.
- o An injunction can be used to correct a hazardous situation before a serious incident occurs.
- o Anyone (civilian, police officer, the district attorney's office) can file for an injunction.
- o District attorneys from several jurisdictions can join together in civil actions (they cannot for criminal prosecution).
- o Action is fast. A temporary restraining order can be obtained the day a complaint is filed, or a preliminary injunction can be obtained within 15 days.
- o Remedial measures can be required by the court that directly address the cause of the violation(s) that created the hazard, e.g., replacing equipment, training employees, or cleaning up a dump site.
- o The injunction can require immediate action rather than restrict activity, e.g., cleanup of a dump site can be required while the investigation continues.
- o Penalties assigned by the court can be set to recover costs as well as impose fines of up to \$2,500 per violation and \$6,000 for violation of the injunction.
- o During the investigation of an injunction suit, the district attorney can request disclosure of information from State agencies that is otherwise confidential.

As an example of use of the injunction process, consider the San Ramon spill. A truck hauling hazardous waste was traveling from Redwood City to Martinez. The wrong type of container was being used and the waste acids began leaking. The leak was detected at an inspection station on the highway. The resulting spill generated a vapor cloud of noxious fumes that caused traffic jams and evacuation of schools in the area. Many agencies and several private companies were involved: CHP, Caltrans, the State and County Departments of Health, fire and police departments, several counties' district attorneys, the hauler and the generator of the waste.

One response of a law enforcement officer might be to cite the driver for a misdemeanor. From the prevention point of view, this would be useless; the driver is not responsible for the violation that caused the leak. Paying the fine would not reduce the likelihood of future incidents involving incompatible containers and contents.

Instead the Contra Costa County District Attorney's office has filed an injunction against the transporter asking

- for money to reimburse the county for expenses and,
- for conditions related to the containers used to haul wastes that will help prevent a recurrence.

Recommendations

- 2.15 The civil injunction should be considered as a critical legal tool available to local district attorneys that is adaptable to the complex problems of enforcement of hazardous material and hazardous waste regulations.
- 2.16 Local inspection and enforcement agency staff should work with the district attorneys to obtain correction of unsafe and hazardous situations before a serious incident occurs.
- 2.17 If specific violations of State law are suspected, the injunction process provides local access to State records otherwise unavailable. Over the longer term, arrangements should be established with state regulatory agencies to report specific violations to the district attorneys. This should improve enforcement, by increasing local awareness of violators, particularly repeat violators, and by encouraging local participation in the enforcement process.

CHAPTER VI

SPILL RESPONSE

SAMPLE SURVEY OF EXISTING LOCAL GOVERNMENT RESPONSE PROGRAMS

Various agencies and industries within the Bay Area were recently surveyed to determine what their capabilities are to respond to hazardous materials incidents. This survey was not intended to be an exhaustive search of present response capabilities, rather it was a sampling of available resources. Responses were received from 29 cities, representing 30% of all Bay Area cities and from the nine county Offices of Emergency Services (OES). Fire departments were the typical contact within each city, with several police departments contacted to confirm fire department responses. A summary of this survey is presented in Table VI-1.

Police/Fire Departments

- o In general, responsibilities are divided as to who at the local level is responsible for managing the response of a hazardous materials incident. Seventy-two percent of the surveyed communities stated that the police are legally in charge, yet most of the on-scene response activity is carried out by fire departments. Fourteen communities have delegated responsibility to the fire department through oral agreements, local ordinances, or by other written agreements. During the various phases of a spill, scene management may shift to state or federal agencies, or other local agencies.
- o More than half of the Bay Area cities surveyed have some type of response plan to deal with hazardous material incidents. These plans consist of at least a telephone roster and resource/equipment list, with 78% of the plans including a formal response plan and/or an incident command system.
- o Local specialized response teams have not been developed in the Bay Area, although some areas are considering the idea. A few communities have hired chemical specialists to advise local response personnel. There is an apparent need for local scientific advisors to aid scene managers.
- o Mutual aid agreements between fire departments exist in all the communities surveyed. Some communities have established cooperative agreements with local industry. There are few agreements between different types of agencies (e.g., police and fire).
- o To identify unknown substances, half of the surveyed fire departments call private clean-up companies. Some departments contact specific industries they have informal agreements with. None have prior contracts with nearby laboratories to do these analyses.
- o Overall containment capabilities appear to be limited, with 15% of the responding communities having no practical containment capacity. This is said to be due primarily to a lack of protective equipment for personnel.
- o Few communities have predetermined evacuation routes for a hazardous materials incident. Communities may have evacuation plans for major disasters such as floods, earthquakes, and civil defense, but none of these consider meteorologic factors (e.g., with direction).

- o For cleanup of a hazardous material incident, most fire departments (70%) contact a private cleanup company.
- o No pre-incident public information programs appear to exist explaining what the public should do in the event of a spill. However, during large spills and on an ad hoc basis, the fire chief or a public relations officer would inform the media of information they felt was necessary for the public to know.

County Offices of Emergency Services (COES)

All COES are primarily responsible for pre-spill planning, coordination and notification, although the degree of active involvement varies among counties. Whereas only half of the cities surveyed had formal response plans, all counties have a hazardous materials emergency response plan, including telephone rosters, concept of operations and responsibilities.

Spills occurring within incorporated areas of Bay Area counties are the responsibility of the government in whose jurisdiction the incident occurs. Counties will provide assistance upon the request of a city official and coordinate activities when state or federal support is needed. Cities and special districts are urged to officially adopt COES plans usually by ordinance, resolution or letter of promulgation, and to develop support procedures for their jurisdictions.

Five counties (Alameda, Contra Costa, Marin, San Mateo, and Sonoma) are actively revising their plans at this time. These agencies are generally trying to provide more detailed procedural plans to improve coordination among various agencies. In several cases, innovative countywide hazardous material programs are being considered.

Other Local Response Programs

Numerous other local agencies, special districts, and government facilities may be involved in spill response. These include utility and park districts, port and airport authorities, military installations, and medical facilities. Undoubtedly there are dozens of such public and "quasi-public" organizations in the Bay Area.

Some of these organizations--utilities, military bases, seaports and airports--are chiefly concerned about keeping their facilities safe from hazardous spills. They generally have some limited response capability. Other organizations provide emergency assistance during natural disasters, but may lack expertise for hazardous material incidents. For example, toxic spill victims may be brought to a hospital emergency room that is poorly equipped for such an emergency.

Conclusions

Present capabilities of Bay Area communities to respond to hazardous material accidents vary tremendously--from the department that doesn't feel it's their responsibility to the city that has hired staff chemists and purchased specialized response equipment. Communities are starting to realize they cannot continue to rely solely on state and federal response capabilities.

LOCAL RESPONSE OBJECTIVES

Coordination among different response agencies has occasionally been difficult because the agencies have different missions and objectives. For example, public safety agencies are primarily concerned with immediate protection of human safety, while an environmental protection agency may focus on long term threats to the natural environment. In the past, one agency's solution has been another agency's problem.

Recommendation

3.1 All response agencies should adopt a common set of objectives:

- o prevention of hazardous materials incidents;
- o protection of human health and safety, water supply, wildlife, aquatic resources and environment, and property;
- o suppression and containment of release;
- o traffic control;
- o fire suppression; and
- o effective training.

CRITERIA FOR EVALUATING LOCAL SPILL PLANS

Although all Bay Area counties currently have response plans, these are presently being reevaluated and updated. This is due in part to recent legislation, adoption of the State Hazardous Material Incident Contingency Plan, and increased awareness of the risks throughout the region. Similarly, those communities not served by a plan need to develop such a program as part of their general emergency preparedness plans. It's important that these plans be clear and consistent among adjoining jurisdictions. Criteria are presented in Appendix B to assist in the evaluation, development, and refining of these plans.

Recommendation

3.2 Local spill plans should be evaluated and updated as needed using the recommended criteria presented in Appendix B.

SCENE MANAGEMENT

Adequate scene management is essential to effective hazardous spill response. Since response to major incidents may involve different types of agencies and possibly multiple jurisdictions, it is important that all response personnel agree beforehand on the lines of authority.

This section presents discussion and recommendations on the following questions:

- o What are the responsibilities of a Scene Manager?
- o Who is the Scene Manager for different types of spills?
- o What should the Scene Manager's qualifications be?

- o How can inter-agency coordination best be achieved before and during an incident?

Responsibilities

Several definitions have arisen as to the responsibilities of the scene manager. This plan uses the definition in the State Hazardous Material Incident Contingency Plan:

"The Scene Manager is the government representative responsible for coordinating systematic response to a hazardous material incident.

"The Scene Manager shall be responsible for coordinating the multi-agency response which may include organizations such as fire, local police, public works, Sheriff, CHP, USCG, Caltrans, medical, etc. It is the role of the Scene Manager to coordinate proper actions (e.g., make initial assessment of the hazards to responding personnel, general public, and environment; prescribe protective measures; issue public warning; etc.) and ensure that appropriate resources are brought to bear in a timely manner. Scene management does not imply internal direction or manipulation of specialized functions of emergency service providers, but coordination of multiple agencies.

"In cases where the severity of the hazard cannot immediately be ascertained and/or the proper course to abate the risk is not clear, the Scene Manager shall, without delay, seek out and solicit technical advice from other agencies on the scene. It is the responsibility of agencies on the scene to provide liaison with the Scene Manager."

Further clarifications as to the responsibilities of the Scene Manager are presented in the Incident Command System (ICS)¹: The Scene Manager (Incident Commander)² is responsible for overall management of an incident. The Scene Manager has final decision-making authority, but may delegate the direction of specialized operations to qualified personnel. Under ICS, position manuals have been developed which clearly describe the full duties and responsibilities of the Scene Manager.

Designation of Scene Manager

Scene Manager applies equally to the police or fire officer first on the scene, or to the highest level representative of the agency having scene management responsibilities. Which agency has scene management responsibility depends on the location or type of spill. Table VI-2 indicates which agencies have designated scene management responsibilities in California. These designations are not ironclad and may vary depending on the severity of an incident.

¹The Incident Command System (ICS) is a standardized system to be used in combatting all types of emergencies. It evolved from FIRESCOPE (Firefighting Resources of Southern California Organized for Potential Emergencies) because of the need to improve coordination and effectiveness in multijurisdictional fires and other emergencies.

² Used interchangeably.

TABLE VI-2. DESIGNATED SCENE MANAGERS IN CALIFORNIA

	Police	CHP	Dept. of Health Services	Dept. of Fish and Game	Local Discretion ¹	Coast Guard ¹	EPA ¹	Dept. of Energy ¹
Freeway		X					X	
Unincorporated State Highway		X					X	
Unincorporated County Road		X					X	
City Streets	X						X	
Inland Waters/Areas				X			X	
Coastal Waters/Areas						X		
Radiological Incident			X					X
Offroads					X		X	

¹ The Coast Guard, EPA and DOE provide the federal on-scene coordinators. The federal government has an umbrella role to respond to all major incidents that are beyond state and local control managing federal response only. As a practical matter, Coast Guard responds to most incidents on the coastal waters/areas.

A major controversy has arisen over the state legislature's designation of local law enforcement agencies to manage spills on city streets and roads (AB 2109, Vehicle Code Section 2454, September 1982). Many communities objected to this, since their fire departments were being trained and equipped to manage these incidents. Several Bay Area communities proceeded to designate the fire departments responsible for scene management, either by ordinance, written agreement or by oral agreements. However, according to the January 20, 1982 opinion of the Attorney General's Office, communities cannot legally transfer scene management responsibility from the police to another agency.

In light of the existing law and the conflicts it has raised, corrective legislation has been proposed. Under such legislation, cities could not only transfer scene management authority to their fire departments, but conceivably to another city's agency when desired. This could promote the sharing of resources among cities, but it also places a greater burden on planning agencies to make scene manager designations perfectly clear.

Legislation was enacted (SB 1483, Vehicle Code 2454 and Government Code 8574-8, August 1982) to "authorize law enforcement agencies to enter into written agreements with other public agencies for the management of a hazardous spill or disaster on local streets and roads other than freeways." However, the actual effect of this law is questionable. This still does not authorize the delegation of scene management responsibility from the law enforcement agency having primary investigative authority to another agency. It is hoped that clarification on the intent of this bill will be provided.

Under the Incident Command System, scene management responsibilities may be shared. This means that joint commanders share decisions and information, ideally at a single command post. Such a unified command is suggested when an incident requires major response efforts from different types of agencies (e.g., police and fire), as well as in multi-jurisdictional incidents. This would hopefully resolve conflicts as to what agencies are responsible for scene management.

Qualifications for Scene Management Agencies

Communities currently need to designate Scene Managers for offroad incidents. Under the State Contingency Plan, localities are encouraged to make this designation through a local Hazardous Material Planning Advisory Committee, with careful attention to the qualifications of candidate agencies. It is not necessary that a Scene Manager be an expert in all hazardous materials; however, that person should be qualified by virtue of training and experience to function in managing an emergency organization.

In order to fulfill its obligations, a scene management agency should use the following guidelines:

- 1) See that likely response managers are trained in incident supervision, with lower level personnel trained in problem awareness and recognition.
- 2) Offer very quick, 24-hour response.
- 3) Have communication systems allowing effective interagency contact.
- 4) Have experience coordinating other agency actions.
- 5) Be familiar with the geographic and institutional features of the jurisdictions and also know the major hazardous spills risks.
- 6) Have capabilities for performing pre-spill planning (and possible training) to help other agencies fit into the incident command structure.
- 7) Have personnel with appropriate training to learn the technical aspects (at least minimally) of spill response.
- 8) Have access to certain types of equipment (e.g., containment equipment, protection gear) and authority to arrange contacts with local laboratories, technical advisors, cleanup companies, and any additional support services.

- 9) If possible, have access to emergency cleanup funds to facilitate timely response.

Who is actually Scene Manager during an incident is an escalating system. It is likely that in the initial stages of an incident, first responders or field personnel will be the Scene Managers. If an incident is small, it is possible that these first responders may be able to manage the entire event. However, if it grows, the Scene Manager position may transfer to senior personnel as they arrive. Thus, training of scene management agencies becomes critical. All personnel likely to be first on the scene should receive training in problem awareness and recognition (Levels 1 and 2 described in Chapter VII). Those senior officers likely to assume final scene management authority on significant spills should receive Level 4 training.

Response Coordination

Effective coordination requires cooperative efforts among different agencies not only at the spill scene, but also in planning beforehand. Scene coordination should be achieved through the Incident Command System, while pre-planning efforts be coordinated through local Hazardous Materials Planning Advisory Committee.

The Incident Command System provides a flexible organizational chart that response personnel can fit into as needed. Responsibilities, lines of authority, and basic management procedures are all developed before the incident, so that valuable response time does not need to be wasted on organizational details. Detailed discussion of the ICS is presented in Volume 3.

Broader inter-jurisdictional planning and coordination can best be achieved through local Hazardous Materials Planning Advisory Committees. These committees should include both public and private representatives. This is where local problems and conflicts can be resolved. Briefly, these committees are responsible for developing coordinated action plans which describe:

- o scene management, including cooperative agreements needed for situations requiring a unified incident command,
- o responsibilities for all participating agencies,
- o standard concept of operations,
- o interagency communication systems (e.g., common radio frequency),
- o resources available for spill response (including equipment, cleanup contractors, technical experts),
- o mutual or special aid among communities,
- o cooperative agreements among industrial firms who can provide response to spills involving their own materials, as well as general assistance and technical expertise,

- o high risk and associates areas,
- o specific response procedures for high probability events, and
- o financial arrangements.

In addition, planning should ensure adequate training of appropriate personnel. These local advisory committees should also provide a forum for evaluating response to specific spills and needed improvements, continually updating of plans and procedures for effective response.

Recommendations

- 3.3 Local response agencies should adopt an incident command system for the scene management of hazardous spills based on the FIREScope Incident Command System. All personnel should be trained in ICS and it should be used in planning response procedures;
- 3.4 Subject to the interpretation of SB 1483 (Vehicle Code 2454 and Government Code 8574.8, August 1982) new legislation may need to be enacted to enable law enforcement agencies to delegate scene management of hazardous spill releases on local streets and roadways, other than highways, to appropriate public agencies;
- 3.5 Local Hazardous Materials Planning Advisory Committees should be established in each county to update or prepare coordinated action plans; and
- 3.6 Local governments should clearly designate the Scene Manager where not already decided. In particular, if localities are given the option of redesignating the Scene Manager for spills on local streets, this designation should be made as soon as possible.

LOCAL HAZARDOUS MATERIAL RESPONSE TEAMS

It is increasingly clear that local governments have primary responsibility to arrange for personnel and equipment for emergency response to hazardous material incidents, barring special circumstances of state and federal preemption. Given this responsibility and the limited resources of most cities and counties, careful attention should be given to how the Bay Area develops adequate response capabilities. Several special hazardous material response (HAZMAT) teams have been formed in the Bay Area, both in the public and private sector. In addition, several teams are being developed or planned. These efforts are critical to improve response performance throughout the region.

Summary of Existing and Proposed HAZMAT Teams

Present HAZMAT teams in the Bay Area are in varying stages of development and service. The locations of existing and proposed local government and private teams are shown in Figure VI-1. Because this is an evolving field there may be other teams in developmental stages that are not presented here. Principal locations of cleanup companies are also indicated. These are presented in perspective with the high risk areas identified in the risk assessment.

KEY TO FIGURE VI-1

Location of Local Government and Private HAZMAT Teams

May 1982

Local Government HAZMAT Teams

1. Contra Costa County Environmental Health Department, Martinez
2. Fremont Area Joint Fire Departments Team (proposed)
3. Lawrence Livermore Lab Fire Department
4. Oakland Fire Department (developing)
5. San Francisco Fire Department (developing)
6. San Jose Fire Department
7. South County Industrial Emergency Council (proposed)
8. Santa Clara City Fire Department
9. Sonoma County Office of Emergency Services (proposed)
10. South San Francisco Fire Department (developing)
11. Sunnyvale Fire Department (developing)
12. San Rafael Fire Department (proposed)

Industrial Cooperatives

- A. Chevron Pesticide Safety Team, Richmond
- B. Clean Bay, Concord (service office in Concord, response equipment located throughout Bay region)
- C. Dow Chemical Emergency Response Team, Pittsburg
- D. Intel, Santa Clara
- E. Raychem, Menlo Park (internal)

*Private Cleanup Companies

Air-Mac, San Francisco Airport
Chemical Waste Management, Santa Clara
Crowley Environmental, Richmond
Oscar Ericson, Inc., Richmond
IT, Inc., Martinez
Safety Specialists, Santa Clara (proposed)

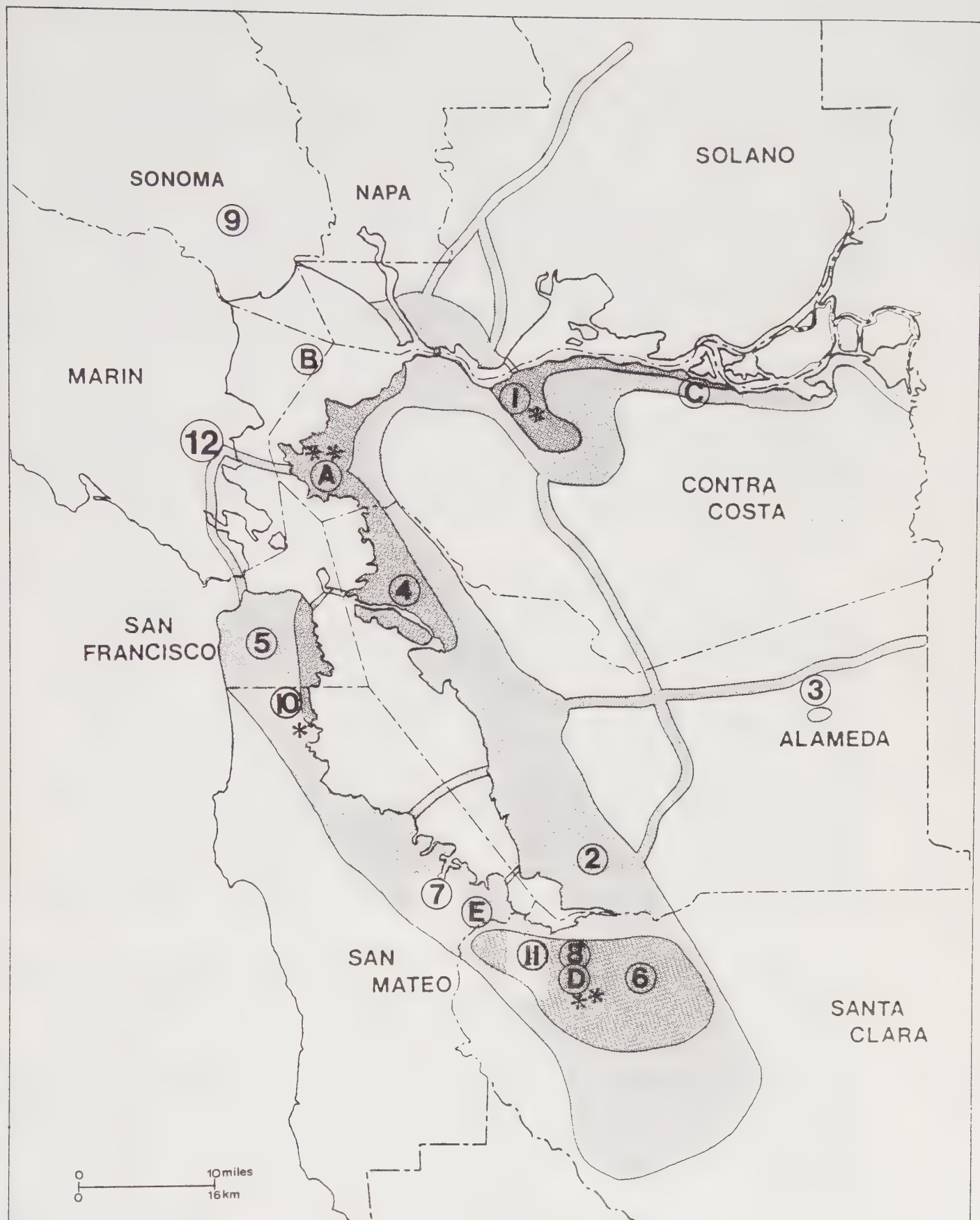


Figure VI-1. Location of local government and private HAZMAT teams.

Local Government Teams

The following discussion summarizes the development of HAZMAT teams in the primary and secondary risk zones. These are evolving programs and it is recognized that other new programs may be in the planning stages.

East Bay Shoreline from Rodeo to Oakland and Alameda. At present, this area is not adequately served by a HAZMAT team. Oakland Fire Department is seeking to develop a response vehicle and expand their capabilities. This could service the high risk areas of Oakland and surrounding communities in Alameda County. Contra Costa County is expanding their Environmental Health monitoring van which would service El Cerrito, Richmond and Pinole, however this would not provide immediate mitigation for an emergency (e.g., containment). In addition, their response time may not be within the recommended 30 minutes.

Martinez, Concord, Pittsburg and Antioch. As discussed above, Contra Costa County's monitoring van would service this area. Since the unit is located in Martinez, response time would be better. Again, this unit would not provide any containment or cleanup capabilities. However, this area is closer to industrial cooperatives such as Clean Bay and Dow Chemical and to IT Corporation.

Silicon Valley from Palo Alto to San Jose. Relative to other parts of the Bay Area, the Silicon Valley is presently better served by local HAZMAT teams. San Jose, Sunnyvale and the Intel Corporation have HAZMAT teams that are developing fairly well. Santa Clara also has two chemists and some special equipment. All these teams need additional equipment and training. The newly located Chem Waste unit is also nearby. This area is large, however, with lots of diverse industries. The need for improved local response capabilities is great.

Eastern portion of San Francisco and South San Francisco. At present, there are some excellent medical resources and advisors in San Francisco. However, the fire department HAZMAT team is developing and in need of additional equipment and training. South San Francisco is a critical area that presently is not adequately served by a local team. Efforts are underway to develop such a team, train appropriate personnel and to acquire necessary equipment.

Secondary Risk Zones. Secondary Risk Zones include the bayshore along San Mateo County, Southern Alameda County, and Benicia-Vallejo. The South County Industrial Emergency Council has proposed placing two vans in San Mateo County. Several Southern Alameda County communities are considering developing one or more HAZMAT units under a Joint Powers Agreement. The risk assessment findings lend support to these efforts. They also suggest that the Benicia-Vallejo area should seek either its own teams or a sharing arrangement with Contra Costa County. Such an arrangement for use of the Contra Costa County Environmental Health monitoring unit has already been discussed. However, this unit does not provide containment capabilities, and access to a full HAZMAT unit seems warranted.

Private Response Teams

The private sector provides several special teams with strong capabilities. Unlike their public counterparts, these teams tend to be fairly specialized. Local agents for the Pesticide Safety Team Network (Chevron) and the Chlorine Institute's Chlorep (Dow) are available to manage spills of chlorines, pesticides, and company products, although they have occasionally assisted in other industrial chemical spills. Clean Bay strictly responds to major spills in the Bay and Delta. Intel's team has general response capabilities, although it is primarily used by electronics firms. Raychem's team responds only to its own plant spills, although it is an example of a well-equipped and trained internal team that may eventually be available to assist local government.

The four publicly available private teams tend to cover much wider geographic areas than government teams and thus potentially have longer response time. These teams have capabilities to monitor chemical hazards, contain and cleanup most spills, and, in the case of the pesticide and chlorine teams, offer medical advice on treatment of spill victims. These teams are well equipped and can draw upon the expertise of company chemists, industrial hygienists, and medical staff.

Recommendations

Capabilities of HAZMAT Teams

The following responsibilities are recommended for first respondents (in all localities), HAZMAT teams, and private cleanup contractors.

- 3.7 All possible first responders should be able to provide initial hazard assessment, personal safety, notification, site control, evacuation and containment of smaller spills. HAZMAT teams should be capable of better identification, monitoring, containment of most spills and cleanup of small amounts of relatively non-hazardous materials that can be done quickly without risk to response personnel:

	<u>First Responders</u>	<u>HAZMAT Teams</u>	<u>Private Cleanup Companies</u>
Assessment/Personnel Safety	X	X	X
Notification	X	X	
Site Control	X	X	
Evacuation	X	X	
Containment	X	X	X
Identification	X	X	X
Monitoring		X	X
Cleanup		X	X
Disposal			X

----->
(increasing severity of accident and subsequent
increase in sophistication of capabilities)

3.8 The following goals are recommended for an effective HAZMAT team:

- o HAZMAT teams would be available to respond to all suspected hazardous material spills within predesignated areas, upon notification, where there is no federal or state preemption.
- o There should be a minimum of four trained HAZMAT members on a team at any one time. This would require a total of at least 10-12 persons on a team.
- o Teams should be able to respond within 30 minutes.
- o Teams should carry or have immediate access to the types of equipment listed in Appendix C. (This includes extensive personal protection gear, basic monitoring and communication equipment, personnel decontamination and first aid, containment tools and supplies, and reference materials.)
- o Team members should receive the Level 3 training described in Chapter VII. (This includes advanced awareness of classes of hazardous materials, basic knowledge of the chemistry and identification of hazardous materials, hands-on training in hazardous materials containment, and training in tactical preplanning for response.)
- o Besides responding to spills, team members may also be involved in related duties such as inspection, public information, and training of hazardous materials handlers and first responders.

In general, local response capabilities should be able to control the more common small and moderate incidents. Immediate and proper local response can also reduce the health risks and damages from a major incident until industrial teams or private cleanup companies can arrive.

Industry and private cleanup companies still maintain an essential role. They have greater technical knowledge and sophisticated equipment for identification, monitoring, containment and cleanup. And importantly, private cleanup companies are the only ones capable of proper disposal of the hazardous material, where products can not be reclaimed. Local planning advisory committees are well-advised to consider using these private resources where appropriate. In particular, local planners could approach manufacturers within their jurisdictions to investigate terms for public use of corporate teams and equipment.

Location of HAZMAT Teams

3.9 Existing or proposed local HAZMAT teams should be fully developed to service the following areas:

First Priorities:

- o Oakland, to service surrounding communities in Alameda County
- o Two units in Contra Costa County, one servicing the El Cerrito to Rodeo area and another serving Martinez, Concord and Pittsburg area.

- o Silicon Valley, from Palo Alto to San Jose

- o San Francisco

- o South San Francisco

Second Priority:

- o San Mateo County (possibly sharing use of South San Francisco teams)

- o Southern Alameda County

- o Vallejo - Benicia

- o Southeast Marin County

Third Priority:

- o Remaining Bay Area

These recommendations are not intended to discourage Area, that microclimatic variations make determinations of atmospheric conditions difficult, thereby creating substantial uncertainty in the results of any dispersion calculation. To this may be added special conditions such as the behavior of a cold vapor cloud which is not well described by ordinary Gaussian dispersion equations.

Approach

As indicated in the key to Figure VI-1, most government teams are being developed or upgraded. If these HAZMAT teams are equipped and trained as recommended in the responsibilities section, regional response capabilities in most of the primary and secondary risk zones will be sufficient. However, few if any of these teams are fully developed.

Given these efforts presently underway, it seems inappropriate to develop a single regional response program. Similarly, it seems unnecessary for all cities/counties to develop their own HAZMAT teams.

3.10 At a time of limited resources, funding priorities should be given to those teams serving several communities. Funding for the establishment and maintenance of such teams could appropriately be contributed by the entire service area.

SHARING AGREEMENTS FOR HAZMAT TEAMS

Many of the proposed or upgraded local HAZMAT teams will be shared among several cities. Given the financial problems facing cities and the relatively low spill frequency in many communities, this makes good economic sense.

Existing Mutual Aid Framework

Most fire departments in California participate in a mutual aid network that provides for local, regional, and even statewide sharing of resources and personnel. These mutual aid services are an integral part of the Bay Area fire protection capabilities.

The state mutual aid system also includes police, emergency services, and medical services mutual aid networks. These mutual aid networks are based on written agreements and procedures drafted within the framework of the California Disaster and Civil Defense Master Mutual Aid Agreement. This document states broad principles for mutual aid, including the fact that such aid is to be extended without reimbursement, units are to remain under control of local officials, and aid is not to be offered at the unreasonable expense of the provider.

Problems for Local Hazmat Teams

The sharing of HAZMAT resources has evolved under existing mutual aid agreements in the Bay Area. Most fire department personnel questioned believe HAZMAT teams can be shared under existing mutual aid agreements in special circumstances. However, most also agree that routine sharing of such services creates problems and requires special agreements. For example, fire mutual aid agreements are based on the assumption that a fire department receiving assistance from a nearby community can reciprocate in kind. For general fire suppression and rescue, this assumption is valid. However, when a HAZMAT team responds to a spill in another jurisdiction without a team, it cannot expect the requesting jurisdiction to be able to respond in kind. Such assistance of a HAZMAT team soon becomes what is termed "outside aid."

Additionally, and as mentioned above, standard mutual aid agreements do not cover cost sharing or compensation for non-reciprocal aid. They also may not cover such issues as: priorities for team use, the expected role, incident command structure, capabilities of the team, inter-agency communications, liability, and training of outside personnel to work effectively with a HAZMAT team.

Alternative Agreements

If a special agreement is needed to govern joint use of a HAZMAT team, two major types of agreements may be used:

- o Joint Powers Agreements are legal contracts among two or more agencies, authorized under California Government Code Section 6500 et seq. These agreements must be authorized by the governing board (typically the city council) of each participating agency. JPAs may establish an independent legal entity to perform services for participating cities, or the JPA may simply spell out the legal principles governing joint use of equipment and personnel. JPAs are typically used when significant issues of compensation, liability, etc. are to be resolved within a formal legal document. They would be essential if participating cities wished to employ HAZMAT team members through a separate, specially created agency.

- o Service Contracts or Inter-Agency Agreements would be signed by the chiefs of participating agencies but would not necessarily require approval of the governing board. These agreements often will be limited by internal regulations of the participating cities. For example, agreements involving compensation over a specified amount or involving certain legal questions (e.g., liability) might require authorization by the governing board.

Guidelines for developing shared use agreements for HAZMAT teams are presented in Appendix D. This is intended to help local agencies work out the contractual and procedural mechanisms necessitated by interagency sharing of HAZMAT team resources (equipment, personnel, etc.).

Special Agreements With Private Firms

Agreements, either formal or informal, for utilizing private response equipment or personnel have been made between several local businesses and fire departments. Local hazardous material response planners should, therefore, examine private capabilities within or near to their jurisdictions, looking first toward the large oil, chemical, and electronics firms, and other major handlers of hazardous materials that are likely to have special in-house capabilities.

Liability for private team actions is a legitimate concern of some companies who could respond to public spills. The Task Force has recommended that "Good Samaritan" legislation be enacted so that a private entity would not be liable for damages caused in responding to a spill. (The private company would still be responsible for workers' compensation.)

While "Good Samaritan" legislation would be helpful, it may not be absolutely necessary. According to one major company, legal actions have not been a significant problem, despite its heavy participation in mutual aid organizations. However, despite a history of cooperative efforts, one mistake could destroy future assistance.

Recommendations

- 3.11 Sharing of public HAZMAT teams should continue and be supported, since it is necessary for effective regionwide spill response as long as economics preclude every city from having a team.
- 3.12 While existing fire mutual aid agreements have provided for extraordinary loans of HAZMAT teams to neighboring jurisdictions, routine team sharing will often require special agreements (e.g., inter-agency agreements, contracts, and joint powers agreements). These special shared use agreements should address issues that are not ordinarily covered in fire mutual aid agreements; the checklist in Appendix D is recommended as a guide to agencies involved in the development of such agreements.
- 3.13 Private firms may have significant equipment and technical resources, including in-house HAZMAT teams. Local scene managers and planners should examine private capabilities within or easily accessible to their jurisdiction and establish cooperative agreements where possible.

TOOLS FOR DEFINING EVACUATION AREAS DURING TOXIC GAS RELEASE EMERGENCIES

The problem of defining evacuation areas during toxic gas release emergencies is characterized by two major constraints: 1) the need for a quick initial determination so that the proper forces can be mobilized; and 2) uncertainty regarding critical input variables such as emission rate (source strength), and microclimatic wind and stability conditions. These two constraints often put spill response personnel "between a rock and a hard place."

In two recent Bay Area tox gas releases, visual tracking of a visible cloud was heavily relied upon to indicate wind direction and identify the primary evacuation area. If the materials involved did not form a visible aerosol, this method could not be used. In addition, the emergencies lasted for several hours and no backup systems or methods were consulted to provide additional information or more refined estimates on what areas should be evacuated.

Currently Available Tools

There are many tools currently in use to help identify evacuation areas for spill incidents. Practically all of them are based on standard Gaussian dispersion equations which have been in general use since the 1950s. The differences between the methods lies in the level of detail and the range of conditions that they can address. The methods can be summarized in four categories of increasing complexity, as follows:

- 1) Simple manual such as the DOT Emergency Response Guidebook;¹
- 2) Complex manual such as the Illinois Environmental Protection Agency's Hazardous Materials Response Guide;²
- 3) Computer-based systems such as Shell Oil Company's SPILLS program,³ or U.S. Coast Guard's HACS system;⁴

¹U.S. Department of Transportation, "Hazardous Materials 1980 Emergency Response Guidebook," DOT P 5800.2; Washington, D.C., 20590, July 1980.

²Illinois Environmental Protection Agency, "Hazardous Materials Response Guide," J. Kelty, Emergency Response Unit, Division of Air Pollution Control, 2200 Churchill Road, Springfield, Illinois 62706.

³Fleischer, M.T., "Mitigation of Chemical Spills - An Evaporation/Air Dispersion Model for Chemical Spills on Land," Shell Development Company, Westhollow Research Center, Houston, Texas, December 1980.

⁴Harding, Lt. R.V. et al., "The Development and Implementation of the Hazard Assessment Computer System (HACS)," Proceedings of the 1978 National Conference on Control of Hazardous Materials Spills, G.F. Bennett, editor, sponsored by the U.S. Environmental Protection Agency et al., Miami Beach, Florida, April 11-13, 1978.

- 4) Large-scale computer systems such as Lawrence Livermore National Laboratory's ARAC system.¹

Evaluation of Atmospheric Dispersion Models

Although none of the methods in use for defining evacuation areas appear to have been subjected to performance evaluation, there have been numerous evaluations of atmospheric dispersion models published over the past several years.^{2,3}

These evaluations all indicate that regardless of the specific theory or construction of the model, an uncertainty of a factor of two or more in the predicted concentrations may be expected. There are numerous explanations for this somewhat disappointing record, but they all boil down to the problems of ambient measurement and mathematical simulation of the real world. In order to make the mathematics manageable, many approximations and simplifications are introduced; major governing processes are retained, but enough of the details are lost both in the model formulation and in the preparation of input data that a factor of two uncertainty in the result (when compared with ambient measurements) has been the invariable outcome.

In terms of defining evacuation areas, the factor of two uncertainty in predicted concentrations does not translate proportionately to a factor of two uncertainty in the evacuation area defined. The uncertainty in the definition of evacuation area would vary according to the size of the spill, the threshold limit value of concern, and the resulting downwind distance where significant concentrations would be expected. As a rough estimate, a factor of 4 or 5 uncertainty in the specification of the evacuation area is the likely range, assuming that proper measurements and observations are used as input to the calculation. If only rough guesses are available for critical input variables, the uncertainty may increase to a factor of 100 or more.

While this range of uncertainty is significant, it is probably at least a factor of ten improvement over the blind application of the DOT Emergency Response Guidebook. At the same time, the on-site judgment of an experienced, trained individual may be equal to or better than what a model could do. Unfortunately, there is no evidence available at present to verify the relative performance of any of these methods so that an objective judgment could be made.

¹Dickerson, M.H., et al., "ARAC Update-1979," Lawrence Livermore National Laboratory, Livermore, California, UCRL-52802, July 9, 1979.

²Hameed, S., "Modelling Urban Air Pollution," Atmospheric Environment, Volume 8, Number 6, pp. 555-561, 1974.

³Koch, R.C. and S.D. Thayer, "Validity of the Multiple-Source, Gaussian Plume Urban Diffusion Model Using Hourly Estimates of Input," Conference on Urban Environment and Second Conference on Biometeorology, American Meteorological Society, 1972.

Issues

The most obvious issue here is what level of sophistication is appropriate for defining evacuation areas. The answer seems to be that it depends on the nature, magnitude and duration of the spill, as well as on the level of training given to response agency personnel for making the appropriate estimates. It is a commonly held view that sophisticated models are of little value in an emergency spill situation, either because of the time required to access the models, prepare the proper inputs, and receive an answer, or because of uncertainties in estimates of critical input variables. Responding personnel that are first on the scene must make a quick decision to mobilize the proper forces to evacuate a given area. However, it is also common that spills serious enough to warrant evacuation will continue to be serious for more than one or two hours. This should be enough time to prepare more reliable estimates of the source strength and meteorological conditions so that more precise estimates of evacuation corridors may be made, and secondary evacuations conducted. This suggests that a two stage system could be used for identification of evacuation areas. Much depends upon how quickly appropriately trained personnel can arrive on the scene. The Illinois EPA method is a compromise between the simple "look up table" and the sophisticated computer models, but presumes that a trained individual will be on the scene to make the proper observations.

A related issue is that it is often the case, particularly in the Bay Area, that microclimatic variations make determinations of atmospheric conditions difficult, thereby creating substantial uncertainty in the results of any dispersion calculation. To this may be added special conditions such as the behavior of a cold vapor cloud which is not well described by ordinary Gaussian dispersion equations.

Perhaps the most nagging problem with all of the methods in use or potential use today is the uniform lack of performance evaluation. While some evaluation has occurred for models of similar generic type, none of the models or methods in use for spills appears to have been tested or statistically verified against field measurements. Further, the sensitivity of the estimated evacuation area to uncertainties in source strength and meteorological conditions should be a standard capability in all of the more advanced methods, since such uncertainties are the major stumbling block once the methods are put into use.

Recommendations

- 3.14 Spill response agencies should maintain or have access to more refined methods and commensurate training for defining evacuation zones than that provided by the DOT Hazardous Materials Emergency Response Guidebook. ABAG should work with the Bay Area Air Quality Management District and other interested agencies to develop a two-tiered system for eventual implementation in the Bay Area: First, a handbook that is intermediate in sophistication to the DOT guidebook and the Illinois EPA guidebook should be developed for wide distribution to local police and fire department personnel. This handbook should require a minimum level of training and no specialized instrumentation for its use. Second, access to an appropriate computer model should be provided to all spill response agencies in the Bay Area. (All necessary computer hardware and/or communication equipment should be designed to be portable such that they may be transported to spill sites via either van or helicopter.)

- 3.15 U.S. DOT and other appropriate federal and state agencies should sponsor verification and sensitivity tests for the variety of methods currently in use to define evacuation zones during toxic gas release emergencies. Special problems posed by microclimatic variations with cold vapor clouds should also be assessed, and appropriate methods developed for handling these situations.

SPILL NOTIFICATION AND REPORTING

Prompt notification of the proper agencies is the first step in successful hazardous spill response. Government notification is also mandatory under several Federal and State statutes. Agencies require spill information to quickly and properly determine appropriate actions and to maintain comprehensive hazardous spills statistics.

Since a hazardous material incident may occur virtually anywhere, it can first be observed by almost anyone. This could be the spiller, a citizen or government official. All face three primary questions:

- o When is spill notification necessary/required
- o Who should be notified?
- o What information should be reported

Overview of Notification

There are two major steps in the notification process:

First, the spiller or observer must report the hazardous material incident to a government agency. This is referred to as initial alert and includes all initial actions necessary to notify local, state and federal response and involved regulatory agencies that a hazardous material incident has occurred. Initial notification would be to (1) the local emergency dispatcher (e.g., the CHP for spills on state highways or unincorporated roads), and (2) the National Response Center.

In the second step, the government agency dispatch center receiving the initial alert must activate local response efforts and notify proper response agencies. This may vary depending on the material involved, type of hazard, and location.

"The dispatcher shall follow standard operating procedures to dispatch emergency response personnel to the scene in accordance with the reported nature of the incident. As soon as the potential or actual existence of a hazardous material release is confirmed, the local jurisdiction shall make notification to the state. This [state] notification is made by local emergency dispatch or observers contacting one of two phone numbers, depending on the circumstances: 1) The Highway Patrol should be contacted for incidents occurring on all highways. 2) The Office of Emergency Services should be called for all off highway hazardous material incidents. Cross notification between these two agencies for information purposes is standard procedure."
(State Hazardous Material Incident Contingency Plan)

These notification roles and how they are carried out are outlined in Table VI-3. A flow chart of a simplified notification process is also presented in Figure VI-2.

TABLE VI-3. NOTIFICATION RESPONSIBILITIES

Who	What	How
Observer	initial alert	911, local emergency dispatch*
Responsible Party	initial alert	911, local emergency dispatch National Response Center, CHP, State OES
Dispatch	receives initial alert interagency notification continued communication link	call tree/notification guide reporting form
Scene Manager	directs interagency notification records incident	notification checklist reporting form

*includes police, fire, public safety and offices of emergency services

Legal Requirements

Industry, small businesses and transporters especially need to know which spills are hazardous and require notification. This information is not readily accessible. Federal notification requirements are based on complex composite lists of hazardous materials with varying "reportable quantities." While businesses or utilities reporting spills may only legally be required to notify a couple of agencies, these private firms may wish to protect themselves by calling all appropriate agencies.

State

The California Water Code (Section 13271) requires the spiller to report any release or threatened release into "any waters of the state" to the California Office of Emergency Services (OES). Notification to alternative agencies such as Federal agencies or the Regional Water Quality Control Board can substitute for OES notification. Additionally, Section 8574.8(b) of the California Government Code requires OES to establish a central notification and reporting system for toxic substance disaster or spill incidents occurring off-highways.

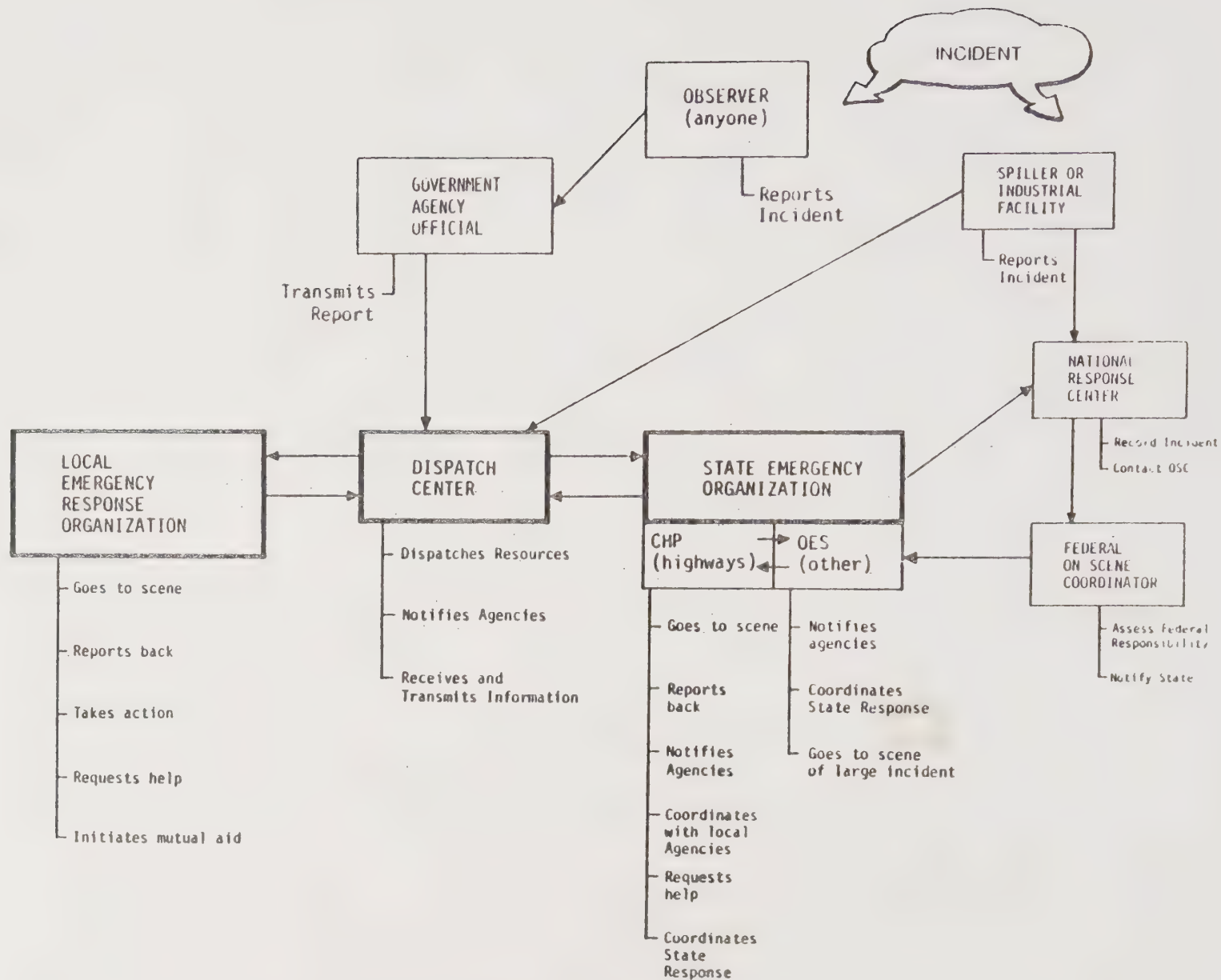


Figure VI-2. Response Initiation Process
(from State Hazardous Material Incident Contingency Plan)

Commercial carriers are also required to notify the CHP of hazardous materials incidents in transit or while loading or temporarily storing their trucks (California Administrative Code Title 13, Section 1166). Similarly, the CHP serves as the "statewide notification coordinator" for all hazardous substance spills on streets and highways within the state (California Vehicle Code Section 2453).

Federal

Under the Federal Superfund legislation (42 U.S. Code 9603) spillers are required to notify the National Response Center. Notification is required for spills of "reportable quantities" of hazardous materials as established by EPA. Unless otherwise defined by EPA or the Coast Guard (in 40 Code of Federal Regulations 117), the reportable quantity is one pound. The Regional EPA Office simply advises, "when in doubt, report" since no criminal liability results from an unintentional spill, although failure to notify is punishable.

Recommendations

- 3.16 911 systems should be adequately funded and organized to serve as part of a centralized notification system for hazardous spills. Similarly, the CHP and OES system should be adequately funded to provide the statewide notification network.
- 3.17 Notification call lists should be developed and updated by all response agencies in cooperation with the local Hazardous Materials Planning Advisory Committees. These should become standard operating procedures for local public safety dispatchers, including those at 911 centers. A guide for developing local call trees is presented in Appendix E.
- 3.18 Emergency Services Offices should develop notification agreements with major industries within their jurisdictions. Industry is encouraged to install early warning systems for hazardous material releases.
- 3.19 Incident report forms should be available to all likely scene managers and dispatchers. A model information report form and model work form are presented in Appendix F.
- 3.20 Notification and reporting procedures should be a standard part of all training programs, at least at the field supervisor level and above.
- 3.21 With the passage of AB 3019, all public utilities, municipal and privately owned, are required to belong to a regional notification center. This notification center, i.e., Underground Services Alert (USA), should be informed of the location of all pipelines. In the event of a spill entering underground passageways, public agencies should notify USA and subsequent pipeline owners for assistance and information.

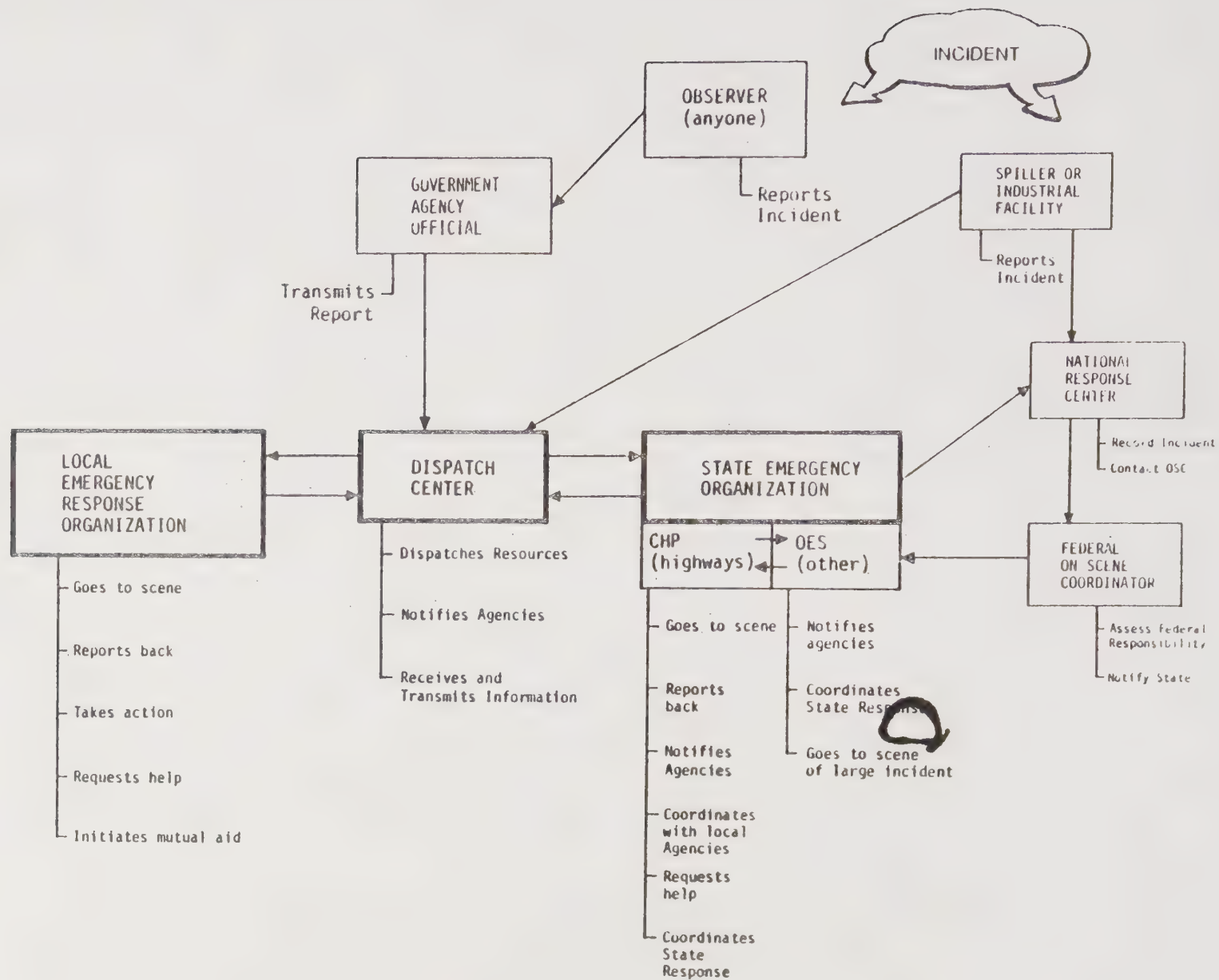


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- 3.21 With the passage of AB 3019, all public utilities, municipal and privately owned, are required to belong to a regional notification center. This notification center, i.e., Underground Services Alert (USA), should be informed of the location of all pipelines. In the event of a spill entering underground passageways, public agencies should notify USA and subsequent pipeline owners for assistance and information.

- 3.22 Shippers of hazardous materials should be notified immediately of an incident involving their commodities since they should know what the materials are and how to properly handle them. Additionally, they may be able to reclaim portions of the load. As part of the required licensing for transporters of hazardous materials, the transporter must provide three emergency contacts. These phone numbers will eventually be entered into the CHP Notification System.
- 3.23 Inventories of hazardous materials, when keyed into the block or address files used by the public safety dispatch centers, should facilitate the notification of proper response personnel inside and outside the agency.
- 3.24 Recognizing that CHP and OES are presently developing the details of a statewide notification and reporting system, it is recommended that this system include revisions of the Vehicle Code to require spills to be immediately reported to the CHP, police or appropriate local agency, identifying what the spilled material is.
- 3.25 Local regulations should be developed mandating the spiller of a hazardous material release to notify the local emergency response agency immediately after the incident occurs.

INTERAGENCY COMMUNICATION

Interagency communication is generally considered one of the major problems in disaster response. Agencies need to contact each other to notify other jurisdictions of a potential threat, to request assistance, and to exchange technical or tactical information. A variety of problems may impede technical and managerial aspects of communications.

Communication Problems

There is an inherent problem with communication during a hazardous spill: a multitude of agencies are brought together that have little daily interaction and no direct communication capabilities. Most of these agencies have communication systems that are designed for independent and normal operations. Communications problems depend largely on the type of contact required, which agencies are involved, and whether extended communications are needed. General communication problems can be summarized as below:

1. Communication capabilities are extremely variable.
2. Different types of agencies (e.g., police, fire, health, public works, and medical) cannot communicate directly within some cities and counties and outside counties. Similarly there is inadequate radio contact with some state agencies, e.g., CHP.
3. There is a need for immediate communication among agencies. Cross communication is time consuming and often inadequate.
4. The statewide police mutual aid network (Clemars) is not fully operational.

5. Radio channels, including the statewide mutual aid networks, occasionally become overloaded.
6. Telephones may be "down" or overloaded during major incidents.
7. There are a limited number of frequencies available from the FCC.
8. There is often inadequate communications equipment to serve mobile command parts.
9. The mutual aid mobile communication vans are not good for immediate response in most areas and may be tied up during fire season or major demonstrations.
10. "Dead spots" in some areas cannot be reached by existing communication equipment.
11. There are inadequate communication links with aircraft.

Considerations

Recognizing that detailed communication plans need to be developed within each jurisdiction as part of a multipurpose system, the following considerations are recommended for hazardous material incidents:

- o A communication center should be established in or adjacent to the Command Post to relay messages among response agencies, on and off-site.
- o Telephones should not be relied upon for communication among field response personnel.
- o Standardized mobile radios or dedicated channels should be established among partner agencies to fully utilize existing radio frequencies.
- o A cache of portable radios with common frequencies should be available for scene management agencies. These would be distributed among the various response agencies during an emergency. Tactical units will have their own internal communication channels.
- o Frequency use agreements should be made so that agencies can use each others' frequencies when authorized.
- o "Clear text" radio speech should be used to eliminate the different agencies' radio codes.
- o The FIREScope system has addressed many common interagency communication problems; these concepts should be considered for application in the Bay Area.

- o As a cost-effective way to rapidly augment existing communication systems, amateur radio organizations such as RACES (Radio Amateur Civil Emergency Services) and American Radio Relay League can provide critical interagency links during major incidents when available telephones and radios are inadequate. Local jurisdictions should explore the use of these organizations in their area. County Offices of Emergency Services or local Red Cross Chapters can put local agencies in touch with such radio organizations to facilitate planning.
- o The concept of a new satellite system is supported for improving the range of present systems.
- o The statewide police mutual aid network (Clemars) should become fully operational.
- o Portable communication equipment should be installed in mobile communication vans and, if possible, standardized.

Recommendations

3.26 The overall strategy to address specific interagency problems should be:

- o First, develop intracommunication capabilities (within departments, cities and counties). There are so many levels of government that local cities and counties must develop their own systems.
- o Second, develop intercommunications capabilities (among counties, state and federal agencies) to combine individual capabilities.
- o Third, develop working relationships with local amateur radio emergency response groups to facilitate rapid and adequate use of existing communications capabilities during major incidents.

Special considerations listed above are presented to assist individual jurisdictions in this effort.

This strategy does create somewhat of a "Catch 22" in that guidelines for intercommunication links could assist in more efficient development of intracommunication systems.

3.27 In order to address communication problems, there should be a regional focal point (e.g., Region 2 of the State Office of Emergency Services or ABAG) to facilitate interagency coordination and to devise guidelines for ongoing intraagency efforts.

Such an effort could also provide a forum for transferring new technologies. Communities are continually replacing and updating communication equipment as part of maintenance and could benefit from such guidance.

PUBLIC INFORMATION

The proliferation of hazardous materials in our society has created a great demand for information on how to properly handle such materials, as well as on how to respond when accidents occur. While attention has focussed on meeting the information needs of industry and public response agencies, little attention has been paid to the information needs of the general public. The public needs, while obviously different from those of industry and government, are no less important in terms of both prevention and response (e.g., a citizen knowing which phone number to call when a spill or release is witnessed).

In addition, the related, special information needs of small businesses and the media are presented. For discussion of the broader issue of public right-to-know, see Chapter V - Prevention. This section discusses public information needs related specifically to spill prevention and response, focussing on notification, health information and a public information campaign.

Notification

Perhaps the most basic and important information to which the public needs access is whom to contact in the event of a hazardous material incident. Since prompt response relies on rapid notification of appropriate agencies and since this varies among incidents, the public should know and utilize a simple system for notification. In addition to knowing whom to call, the public should be made aware of which circumstances warrant notification (e.g., spotting a bag falling off of a truck on the highway) and what information (e.g., location of spill, type of material) will be needed. All of this information should be easily accessible and widely publicized as an integral part of any broad-based public information program. An example of a citizen's guide to hazardous spills is presented in Appendix G.

Health Information

In the event of a hazardous material incident, there is an immediate concern for the health of those who may have been exposed. Depending upon the magnitude of the incident, the resulting demand for health information may involve a few people or entire communities. Members of the general public need to know what resources exist for obtaining health information, and how and when to use them.

Special Information Needs

Small Businesses

Small businesses are addressed in particular because, for various reasons, employees of small businesses who handle hazardous materials may be reached by public information routes before they are given information or training by the employer.

A problem seems to exist for small businesses in obtaining adequate information on the hazardous materials they use, and on proper emergency notification procedures. Despite the fact that small businesses (like larger ones) are mandated by OSHA to provide such information to their employees, they may not have the same incentive to do so if, for example, the business handles what it believes to be small (yet possibly dangerous) amounts of hazardous materials, or if the company's resources are very limited.

The Media

The media represents a major resource in the dissemination of public information. While it can be utilized in an educational way through talk shows, public service announcements, etc., the emphasis for this discussion is regarding the media's reporting on spills.

There are three main needs on the part of the media: 1) the need for reporters to know how to best perform their jobs, while not endangering themselves or hindering response efforts; 2) the need to know what health and safety information the public should be aware of; and 3) the need to know who can provide that information most accurately.

For major incidents, the media can serve an invaluable role. With good working relations with health, fire and other emergency response agencies, the media could provide the public with important information and help to reduce the burden on already overworked agencies.

A media workshop, wherein personnel from newspapers, TV and radio could meet with the various response agencies to discuss the situation and initiate an ongoing relationship, would serve a much needed informational and coordinating function.

Recommendations

Notification

- 3.28 A single notification system should be publicized for public use in reporting a spill of an unknown or hazardous substance.
- 3.29 The public should be informed as to when notification is necessary and what information they will need to provide.
- 3.30 The capabilities of 911, Zenith-12000 and local police/fire departments to receive and act upon initial spill reports should be assessed and, if necessary, improved.

Health Information

- 3.31 Once the material is known, members of the general public should continue to call the Regional Poison Control Center for health information. The Poison Control Center's phone number should be included in any public information material or campaign. Procedures should be made to notify Poison Control should a spill occur to alert them to possible calls from concerned citizens. The efforts of the Poison Control Center should be supported and continued, as it provides a unique, essential service to the region.

- 3.32 In order to effectively disseminate information to the public on a large scale, local media, emergency responders and public information officers from appropriate agencies should coordinate efforts and plan dissemination of information before incidents occur.
- 3.33 Local public health officers organizations and community disaster organizations should be notified in cases of large hazardous material incidents. Additionally, through the medical association, physicians should be made aware of the procedures to be followed and resources available during hazardous materials spills so that they can treat their patients appropriately.

Approach

- 3.34 A concerted public information campaign focussing on what citizens should do in case of a toxic spill or release should be conducted in the Bay Area. A citizen's guide to hazardous spills is presented in Appendix G.

Special Informational Needs

- 3.35 Small businesses should be made aware of and utilize resources such as MSDS's, professional and trade associations, government agencies and local fire departments for providing information and training to their employees, as mandated by law.
- 3.36 Local fire/public safety departments should work with small businesses, as in the city of Santa Clara, to educate and inform them on proper handling, use and storage of hazardous materials.
- 3.37 Response agencies should develop working relationships with members of the media so that, in the event of a spill, reporters will know whom to contact for reliable information. As recommended by the training subcommittee, media relations should be included in response training.
- 3.38 A media workshop should be held to promote good and effective working relationships between the media and the response agencies with whom they will be involved in case of a hazardous materials incident.

CHAPTER VII

TRAINING

ASSESSMENT OF HAZARDOUS MATERIAL TRAINING NEEDS FOR PUBLIC SPILL RESPONSE AGENCIES

The current hazardous materials training of public spill response agencies in the Bay Area was assessed and found to be in need of improvement. This chapter presents the needs assessment findings, as well as recommendations for improving public agency spill response training.

Summary of Current Training Programs

Initially, several surveys were completed in order to identify broad problem areas regarding hazardous materials training. Once the nature and scope of the problem was outlined, recommendations were made for improving local training. The problem areas were identified as follows:

1. Training courses are often inaccessible.

Although there appears to be an abundance of training programs nationally, local personnel are often prevented from participating in them due to a lack of resources--time and money.

2. The quality of training courses presently available is extremely variable.

The one- or two-session format often used is an attempt to address all pertinent issues and problems in a convenient amount of time; unfortunately, such courses ultimately provide general knowledge rather than specific skills.

3. There are no generally accepted standards or criteria for hazardous materials training requirements.

Since there has been no systematic analysis of the knowledge and skills that various prevention and response personnel should possess, it is left to the individual agency to determine its employees' needs and fill them, resulting in wide variations in preparedness.

In addition, the lack of standards makes it difficult for course developers to provide relevant training and it complicates the consumer's ability to choose among courses.

4. There is neither a clearinghouse for information on hazardous materials training programs, nor a focal point for providing such training.

In order for agencies to participate in training programs they must first know of their existence. At present there is no central place to go for information on available programs, causing some needs to go unmet unnecessarily.

In addition, the fact that there is no focal point for training often leaves the consumer at the mercy of the trainer's standards of quality.

5. An insufficient number of prevention and response personnel in public agencies are adequately trained to deal with hazardous materials.

Although there are some exemplary training programs in certain local jurisdictions, this is not the case for the region as a whole. For example, two-thirds of the personnel in fire departments surveyed (small, medium and large) had not been trained in areas such as spill containment, risk assessment, properties of chemicals and pertinent regulations. Even those who had received such training gave it an overall rating of "inadequate."

6. Training received by private companies has been difficult to assess, but appears to be widely variable in both quantity and quality.

If hazardous materials prevention/response training is seen as a priority by management and if resources (time, money, staff) are available to provide such training, the company may be well trained to deal with the hazardous materials they use. Subjectively, there are probably many companies for which hazardous materials training is a high priority. Without an independent set of training standards, however, it is difficult to make definitive statements in this area.

Further work is required in order to properly assess the extent of training needs for private industry.

Training Model

One of the most difficult problems in conducting training surveys is that people's judgments of what is "adequate" vary tremendously. In assessing the adequacy or appropriateness of current training programs, it is therefore necessary to define a standard against which the various courses and programs can be compared. A description of an appropriate training program has been developed and is presented in the training model illustrated in Figure VII-1. The model defines four levels of training for individuals within an organization (response agency or private industry) that deals with hazardous materials.

Level 1 is the basic awareness training that should be given to all individuals that might come into contact with hazardous materials in the course of performing their jobs. This is the minimum level of training that should be received by all firefighters and law enforcement officers. Level 2 is appropriate for first level supervisors and involves training in problem recognition and initial assessment. Level 3 is designed for members of an incident response team. Level 4 is reserved for response team supervisors, incident commanders, or on-scene coordinators, and requires the greatest degree of training

practical. Thus, the various levels form two triangles: one triangle indicating the number of people involved, and the other triangle (inverted) indicating the degree of training required at each level. An additional level above these four levels is reserved for agency and company managers/decision-makers. People in these top management positions should have an appreciation of the problem and the systems and coordinative agreements needed to solve them.

Recommendations are presented in Table VII-1, regarding course outlines, hours required, and frequency of retraining for each level. Further, existing courses that are appropriate at each level have been identified. It was generally agreed that there was no single course available today which would satisfy the requirements at any of the levels outlined.

Recommendations

- 4.1 Public agencies having a role in hazardous spill response should provide specialized training to their employees using the model and outline presented in Table VII-1.
- 4.2 Since staffs of volunteer fire departments are not paid employees and therefore typically hold other full time jobs, the method for training volunteers in dealing with hazardous materials must be made particularly convenient to their needs. Volunteer fire departments should receive Level 1 and Level 2 training, and should develop agreements with other agencies for assistance should Levels 3 and 4 expertise be needed. Examples of alternative training methods include the use of video programs, and utilizing a home-study workbook course such as the DOT/NFPA course that is currently being updated.

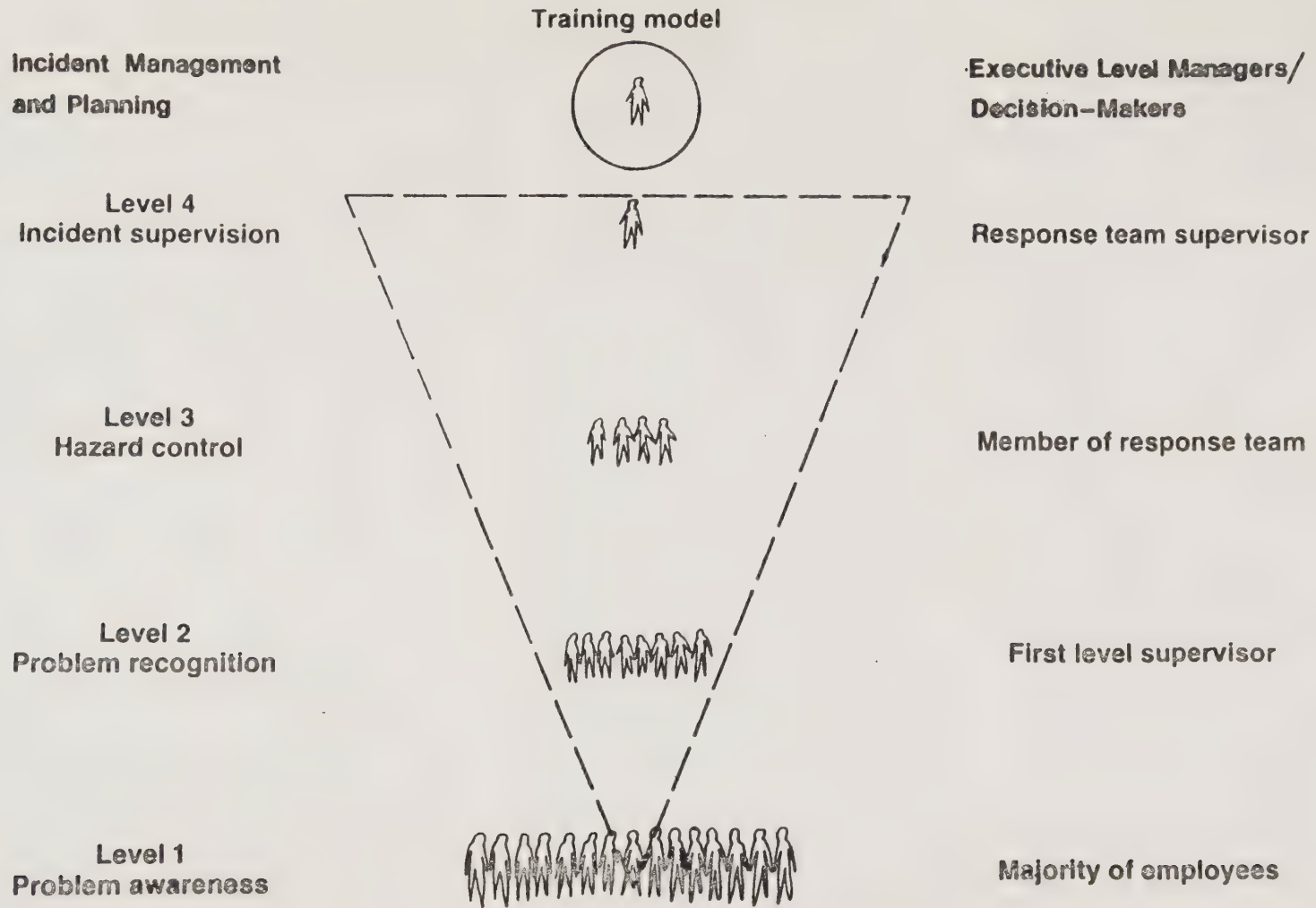


Figure VII-1

TABLE VII-1

RECOMMENDED OUTLINE OF TRAINING REQUIREMENTS FOR PUBLIC SPILL RESPONSE AGENCIES

LEVEL 1: BASIC AWARENESS

TARGET GROUP:

Everyone involved in responding to hazardous materials incidents--dispatchers, line staff recruits, supervisors--from agencies such as police, fire, CalTrans, public works, etc.

TRAINING NEEDS:

Persons at Level 1 should be trained in hazard identification and proper notification procedures. The specific knowledge and skills which should be imparted in Level 1 training are as follows:

A. Assessment

1. recognition and identification of hazardous materials according to their general classification (i.e., acids, corrosives, poisons, etc.)
 - a. location/interpretation of placarding systems: DOT, NFPA
 - b. procedures/protocols for labelling or placarding--fixed sites versus transport
2. overview of general health hazards related to hazardous materials incidents
 - a. human effects: methods/routes of contamination, basic first aid, protective equipment, prevention of contamination
 - b. environmental effects: spill impacts on air, land, water; agencies with jurisdiction over each environment

B. Notification

1. location of hazardous materials
 - a. local fixed sites--based on inventory
 - b. local transport routes for hazardous cargos
2. protocols for notification
 - a. assistance agency roles and responsibilities
 - b. data/information required for proper notification

C. Resources

1. resources for response assistance
 - a. other agency roles and responsibilities
 - b. own agency roles and responsibilities
2. resources for information (example: DOT manual)
 - a. range and type of informational materials available
 - b. obtaining and utilizing informational materials

TRAINING FREQUENCY

- A. initially: within 6 months of employment
- B. annual refresher course
- C. minimum length of time required to cover Level 1 topics in one course: 4-24 hours, depending on agency need and responsibility (e.g., Caltrans-4 hours, firefighter-24 hours)

PRESENT TRAINING SOURCES

- A. California Highway Patrol (CHP) Module I
- B. Los Medanos College emergency response course (NFPA book supplemented by lecture)
- C. user designed courses
- D. suggested: combine CHP Module I and NFPA book

CURRICULUM GAPS

Note: The gaps identified in this section exist for the next three levels of training as well

- A. Level 1 training presently available is inconsistent in content and frequency
- B. an ideal curriculum for Level 1 training does not yet exist (current offerings are too general or too specialized and not tailored to local needs)
- C. competent instructors are in short supply
- D. relevant training materials and information are not readily available from any one centralized local source
- E. simulation exercises should be used in training all levels

FURTHER RECOMMENDATIONS

- A. all response vehicles (including police, fire, CalTrans, public works) should carry reference materials such as the DOT manual

LEVEL 2: PROBLEM RECOGNITION

TARGET GROUP:

First level supervisors--amounts to approximately 20% of an agency's staff--examples: captain, sergeant, foreman, etc.

TRAINING NEEDS:

Level 2 personnel should have all the training of Level 1, plus further training in:

A. Assessment

1. health hazards overview
 - a. environmental impact: contamination paths, proper handling of materials in view of potential threat to environment--air, land, water, damage to property
 - b. human health: effects of various materials, decontamination equipment and procedures, first aid
2. handling/identifying unknown substances
 - a. entry protocols
 - b. personal protective equipment--types, use
 - c. resources for assistance
3. investigation of incidents
 - a. sampling techniques--proper equipment and methods
 - b. understanding importance of--liability/cost recovery

B. Resources

1. knowledge of resources for information
 - a. roles/responsibilities of various assistance agencies
 - b. notification procedures/protocols/information required

- c. use of informational resources: Chemtrec, industry personnel, poison control center, military explosive ordnance disposal (EOD) teams, health departments, OHMTADS (computerized information system), California Highway Patrol (especially for rural or underserved areas)
- d. use of written references such as DOT manual, NFPA hazardous materials book

C. Containment and Control

- 1. containment/control means and methodology
- 2. supervision of control activities
- 3. knowledge of command post procedures: initiation, perimeters, procedures for establishing incident command system

FREQUENCY

- A. Initially: within 6 months of promotion or new employment
- B. Annual refresher course
- C. Required course time (assuming Level 1 taken) 16-24 hours, depending on agency needs and responsibility.

PRESENT TRAINING SOURCES -- Usually modified or supplemented by users to suit their needs

- A. California Highway Patrol Module II (not in use yet)
- B. Los Medanos College course
- C. Fire Command 1B (covers Levels 1 and 2; Fire Command 1A is prerequisite)
- D. Southern Pacific (covers Levels 1 and 2)

CURRICULUM GAPS (see also Level 1)

- 1. There is presently no course which fits the aforementioned criteria
- 2. Most agencies do not have an inhouse capability to do Level 2 training since to do so would require people with Level 3 training and there are usually few people available who fit this description

LEVEL 3: HAZARD CONTROL

TARGET GROUP:

Members of response team; amounts to 5% or less of employees.

TRAINING NEEDS

Persons trained at Level 3 should have been trained in Levels 1 and 2, should have demonstrable mechanical abilities (e.g., certified truckman), and should receive the following specialized training:

- A. Advanced awareness of classes of hazardous materials, such as that provided in Colorado Training Institute's "In Depth Hazardous Materials Seminar" (80 hours)
- B. Chemistry relating to hazardous materials, such as provided in National Fire Academy's "Hazardous Materials I" (80 hours)
- C. Hazardous materials containment (i.e., plugging, diking, etc.). Due to the variability in types of containment equipment and materials available, this is a user-designed course in use of such equipment and materials (approximately 40 hours including hands-on training).
- D. Hazardous materials spill class such as provided by Safety System's Leak, Spill and Fire Control School, Jacksonville, Florida. This course includes drill ground exercises for container patching and spill containment using a variety of equipment and applied to a wide variety of hazardous materials (40 hours).
- E. Preplanning of target hazards. User-designed training in development of response plans for specific target hazards in the response area (approximately 40 hours).

F. Hazardous materials problems unique to the response area.

This training is user-designed to include specific training for implementation of response plans for specific, identified local targets such as carriers, users, storers, etc. (approximately 80 hours)

G. Identification of unknown substances. There is no specific training course currently available that addresses the unique needs of response team members.

TRAINING FREQUENCY

In addition to the training program outlined above, annual refresher courses totalling approximately 100 hours per person and 6-8 hours per month of ongoing drill ground exercises utilizing available equipment and materials should be completed.

PRESENT TRAINING SOURCES

(Identified in A through G above.)

CURRICULUM GAPS

There is no specific course currently available for identification of unknown substances that addresses the unique needs of a hazardous materials response team.

LEVEL 4: INCIDENT FIELD SUPERVISION

TARGET GROUP:

Agency employee(s) designated as Level 4 supervisors--highest level field supervisor position (e.g., on-scene coordinator, incident commander, scene manager, etc.)

TRAINING NEEDS:

Persons trained at Level 4 should have been trained in Levels 1-2 and have further expertise in:

A. Preplanning - development and implementation of response plans

1. based on knowledge of local hazards, sensitive environments
2. staff preparation/training

B. Assessment

1. investigation/documentation of incidents
 - a. identification of source, type of material
 - b. assessing cost of containment
 - c. understanding importance of process--liability, substantiation of cost recovery claims
2. personnel protection required

C. Notification/Response Coordination

1. working knowledge of emergency operations center (EOC) and Office of Emergency Services (OES)
2. knowledge of proper notification protocols--follow-up measures to ensure proper agency(s) notified

D. Containment and Control

1. isolation/containment practices, procedures, policies
2. evacuation - procedures, policies, contingency plans

- 3. overview of funding mechanisms/cost accounting methods for control/containment
- E. Regulations--knowledge of pertinent local, state, federal regulations (example: waste labelling)
- F. Media relations/public information

TRAINING FREQUENCY

- A. Initially: within 6 months of promotion/new employment
- B. Annual refreshers
- C. Time required for Level 4 basic orientation course (assuming Levels 1-2 already completed): 12-16 hours of introductory coursework plus 1 or more of the courses listed below (to be completed as soon as is practical).

PRESENT TRAINING SOURCES - none entirely complete; users supplement to meet own needs

- A. California Specialized Training Institute (CSTI), 40 hours
- B. National Fire Academy - Hazardous Materials I and II (160 hours total)
- C. California State Fire Academy - Hazardous Materials I, II, III

CURRICULUM GAPS - See Level 1

FURTHER RECOMMENDATIONS

- A. Level 4 personnel should have an ongoing working relationship with their counterparts in other pertinent agencies

INCIDENT MANAGEMENT AND PLANNING

TARGET GROUP:

Upper level management (e.g., fire chiefs, police chiefs, public works directors and other administrators) who guide the operations of the "field" staff (Levels 1-4).

TRAINING NEEDS:

Personnel at this level should have general knowledge of training at Levels 1-4, but not necessarily in great detail, since this is an administrative level which, instead, requires awareness of and reliance upon the skills and expertise of field staff.

In addition to the areas indicated below, personnel at the management level should be responsible for educating local elected decision makers as to the magnitude of the problem and the resources required to provide protective services. Personnel at this level should have had extensive specialized training or on-the-job experience in the following areas:

- A. Preplanning - development of interagency agreements for enhanced coordination of response activities (e.g., development of mutual aid pacts, joint powers agreements). The needs of volunteer fire departments in the region may require special attention.
- B. Command/Control
 - 1. adopt incident command system
 - 2. have working knowledge of emergency operations center (EOC)
- C. Resources
 - 1. knowledge of duties/responsibilities of allied agencies to use for assistance/information

2. understanding of internal resources (e.g., staffing plans, capabilities/limitations of staff and equipment)
 3. develop agreements with other technical assistance resources (e.g., local labs)
- D. Evaluation
1. information needed
 2. data/information collection methods
- E. Legal/Moral Obligations (e.g., knowledge of agency's role vis-a-vis legal mandates, as well as situations which impose a tacit but not legislated--i.e., moral--obligation to assist or respond.

TRAINING FREQUENCY:

- A. Preferably, individual has general knowledge of Levels 1-4, plus extensive on-the-job experience and/or specialized coursework from programs such as are identified in the following section.

PRESENT TRAINING SOURCES - training at this level is primarily "on-the-job" with supplementary courses from:

- A. California Specialized Training Institute (CSTI) - Disaster Management course
- B. National Fire Academy - Hazardous Materials III
- C. California State Fire Academy - Hazardous Materials III

CURRICULUM GAPS - See Level 1

ASSESSMENT OF HAZARDOUS MATERIALS TRAINING NEEDS FOR PRIVATE INDUSTRY

Hazardous materials training is mandated by several state and federal laws, including, for example, the Occupational Safety and Health Act, Code of Federal Regulations Titles 40 and 49, the Resources Conservation and Recovery Act and the recent California "Workers right-to-know" legislation. For industry, hazardous material incident prevention and response training is one aspect of safety training. Because awareness of chemical hazards in many industries is relatively recent, hazardous material training is not yet as well developed as some other aspects of safety training, e.g. first aid. Needs vary according to company size, processes, and product; however, in general, large and small companies share common hazardous material safety training needs, but differ in the resources they have available for meeting their own training needs.

General Hazardous Material Training Needs

- o Easily accessed safety and emergency response information specific to materials and processes used in each facility

While some of this information (e.g. facility hazard analysis) will need to be developed by the individual company, other types of information, such as recommendations for safe handling and storage, may be obtained from existing external sources.

- facility hazards analysis
 - safe handling and storage
 - packaging and labeling
 - safe transportation of wastes to storage site
 - safe equipment use
 - emergency response, including notification and personal protection
 - pertinent regulations
 - potential danger from hazardous materials during other emergencies
- o Development and practice of building- or facility-wide training exercises and drills
 - o "Hands on" training equipment and facilities for emergency response team members

- o Information and resource sharing among industries, and between industry and government; mutual-aid system development.

Approaches to Meeting Training Needs

Due to the different characteristics of large and small companies, different approaches to meeting respective training needs are required. Following are some general differences between large and small companies, with a recommended approach for each.

Large companies

- o Have more than 100 employees
- o Are able to support at least one full-time safety officer, who conducts in-house safety training
- o Use, handle, or store large quantities (dozens of drums) of different hazardous materials
- o Have multiple, variable processes and activities involving hazardous materials
- o Have resources to send some employees to off-site training classes
- o May be able to support an in-house emergency response team.

Some of these needs can probably be met most efficiently by an "insider" (the safety officer), who is familiar with the facility's operations, processes, products, etc., developing the company's training program, using outside information and training resources. Such existing resources include seminars, training courses, reference books and manuals, audio-visual aids, and computer based data banks. However, the existence of these resources is not always easily ascertained. Industry needs an information clearinghouse that provides specific information on hazardous material training resources. The need for training exercises could be met with regional training courses and facilities with special equipment for demonstrations, simulation drills, and "hands on" exercises for emergency response team members. With the aid of an information clearinghouse and special training facilities, large companies could "train the trainer" by sending safety personnel to pertinent activities. To develop local and regional mutual-aid systems, companies need to organize to inventory resources and capabilities that can be shared.

Small companies

- o Have fewer than 100 employees, even as few as one
- o Do not have personnel whose duties are solely safety: however may have, for example, a production manager or engineer whose duties include safety

- o May have large quantities of hazardous material on-site
- o Do not have the resources to send personnel to off-site classes
- o Probably cannot support an in-house emergency response team.

While small companies' potential hazardous material problems may be as great as those of large companies, small companies usually have fewer resources to deal with their problems.

Because little employee time is available to develop facility-specific training programs, small companies need information "pre-packaged" for their use. Because employees cannot be spared to travel to classes, a "mobile class" that could periodically visit small facilities to train all personnel, using instructors, training equipment, and demonstrations would be appropriate. The "mobile class" could include videotape modules developed specifically for small company employees.

Recommendations

- 4.3 Private industries, having the primary role in preventing hazardous materials incidents, should provide specialized hazardous materials training to their employees, following the general guidelines presented in Table VII-2, and with flexibility to tailor such training to the needs of their particular industry and employees.

TABLE VII-2 RECOMMENDED OUTLINE OF TRAINING FOR PRIVATE INDUSTRY

Level 1

Target Group: All employees that work with or near hazardous materials--line operators, equipment operators, material handlers, process control personnel, shipping and receiving personnel, maintenance personnel, laboratory technicians.

Training Needs: Incident prevention through proper handling, and limited incident response--recognition of an incident, identification of hazards, proper notification, appropriate mitigation actions.

- A. Prevention - focusing on understanding how to comply with all pertinent regulations
 - safe equipment use (e.g. forklift driving, lab apparatus)
 - proper handling (e.g. according to material safety data sheets, OSHA requirements, company policy, DOT regulations)
 - proper storage (e.g. according to local code requirements, NFPA recommendations, material safety data sheets)
 - proper waste disposal (e.g. RCRA and DHS requirements)
- B. Assessment
 - recognition of each hazardous material in the work area and its potential hazards
 - material compatibility
 - recognition of DOT & NFPA labeling and container systems
 - procedures for labeling hazardous material containers
- C. Notification (internal)
 - when notification should be made
 - who to notify
 - how to notify
- D. Mitigation
 - when action is appropriate (e.g. shut off flow if you can do so safely)
 - what actions are appropriate (e.g. if material is splashed on you, change your coveralls)
 - personal protection equipment and actions
 - first aid
 - information resources (e.g. location of material safety data sheets)

Training Frequency

- A. Initially; within six months of employment (although employees should not work in an unsupervised position handling hazardous materials until they are trained)
- B. Annual overall refresher course, supplemented by updates as specified below
- C. For material- or process-specific information, whenever a new material, process or regulation is introduced
- D. Minimum length of time required to cover topics: 4-8 hours annually

Training Sources:

- A. In-house programs developed from seminars, texts, material safety data sheets, consultants, etc.
- B. Individual chemical manufacturers' awareness programs
- C. American Red Cross and National Safety Council programs
- D. California Trucking Association

Level 2

Target Group: Shift supervisors, department supervisors, safety managers

Training Needs: Level 2 personnel are responsible for actions of Level 1 personnel. In case of an incident, Level 1 personnel notify this group. This group needs additional information for deciding whether to notify Levels 3 and 4, and whether to take further mitigation measures. Therefore, Level 2 personnel need Level 1 training plus:

- A. Prevention
 - should have training of Level 1 personnel, plus expertise in
 - enforcement of safety rules
 - periodic inventory of on-site hazardous materials
 - periodic safety inspection and follow up
 - hazard analysis/risk assessment
- B. Assessment
 - when and how to evacuate an area
- C. Notification
 - internal (Levels 3 and 4)
 - external (when notification is appropriate, and who should be notified)
- D. Mitigation
 - information resources, internal (emergency response team) and external (local fire department capabilities, CHEMPREC, poison control center, health department, IT Corporation)
 - initial containment steps and when they are appropriate

Training Frequency:

- A. Initially; within six months of promotion or new employment
- B. Annual overall refresher course, supplemented by updates as specified below
- C. Whenever significant changes in processes, materials, organization, regulation, etc. are made
- D. Minimum length of time to cover topics, assuming Level 1 course has been completed: 8-12 hours

Training Sources:

- A. Seminars such as those offered by the California Trucking Association, individual carriers, individual chemical manufacturers, consultants.

- B. Fire and police agencies.
- C. Texts and material safety data sheets
- D. Individual insurance companies
- E. American Red Cross and National Safety Council programs

Level 1

Target Audience: All employees who act as in-plant emergency response team members.

Training Needs: Detailed knowledge of plant or area processes, equipment, materials, and hazards, plus incident assessment, containment, control, and mitigation ability.

- A. Assessment
 - Same as Level 1, plus
 - use of detection and identification instrumentation
 - when to call for outside assistance
 - potential environmental impact
 - potential legal liability
- B. Communication/Coordination
 - use of in-house radio equipment (portable)
 - working knowledge of plant emergency operations center (EOC)
 - notification-internal and external
 - facility-wide evacuation procedures
- C. Mitigation
 - containment and control procedures (e.g. diking, fogging)
 - use of protective suits and self-contained breathing apparatus
 - use of mitigation equipment (e.g. sorbent materials, neutralizers)
- D. Resources
 - information sources, internal (e.g. plant chemist) and external (e.g. fire department, CHEMTREC, etc.)
 - local sources of equipment and instrumentation (e.g. other industrial facilities)

Training Frequency:

- A. Initially; first month of assignment
- B. Two to three hours per month (or as needed) to cover changes in a product, process and regulation
- C. Minimum length of time required to cover topics, assuming Level 1 has been complete: 24-36 hours annually

Training Sources:

- A. Fire and police agencies
- B. American Red Cross programs
- C. Consultants

Target Group: Management

Training Needs: An overview of the facility's or the area's potential hazardous material problems, in-plant capabilities, local outside capabilities, and the company's role in the community.

- A. Preplanning/Prevention
 - development of facility inventories (hazards and resources) and response plans
 - development of evacuation plans
 - development of mutual aid agreements with other companies and government agencies
- B. Assessment
 - post-incident investigation and documentation
 - legal aspects (e.g. liability, substantiation of cost recovery claims)
 - post-incident analysis to prevent recurrence
- C. Resources
 - knowledge of internal and external resources, their capabilities, and limitations
- D. Notification
 - outside agencies that require notification, documentation
- E. Media relations/public information

Training Frequency:

- A. Initially; within six months of promotion or new employment
- B. Annual refresher course, supplemented by updates as specified below
- C. Whenever significant changes in product, process, regulation, etc. are made
- D. Minimum length of time required to cover topics: 4-16 hours annually

Training Sources:

- A. California Specialized Training Institute (CSTI)
- B. National Fire Academy
- C. Fire and police agencies
- D. Local offices of emergency services

ASSESSMENT OF HAZARDOUS MATERIALS TRAINING NEEDS FOR PUBLIC PREVENTION AGENCIES

The primary role for public agencies in the area of prevention is to attempt to inspect entities which use or handle hazardous materials to ensure their compliance with all pertinent regulations, and to take whatever enforcement actions are necessary, appropriate, and available to ensure life safety.

The primary agencies with jurisdiction in areas relevant to prevention are:

1. Fire departments' fire prevention bureaus - inspect fixed facilities for fire hazards;
2. California Highway Patrol - inspects transporters of hazardous materials for compliance with regulations;
3. U.S. Coast Guard - inspects waterborne carriers of hazardous materials for compliance with regulations;
4. Cal OSHA - inspects worksites for worker health and safety hazards;
5. Public health departments' environmental health sections - inspect businesses for sanitation and safety hazards;
6. Public works departments' building inspection divisions - inspect buildings and plans for compliance with building and zoning codes;
7. San Francisco Airport security department - inspects equipment, facilities, and cargo for compliance with regulations;
8. Federal Railroad Administration - inspects railcar cargo and equipment;
9. EPA - random inspection of hazardous waste facilities; and
10. Local police departments - early recognition of and action on potentially hazardous situations discovered in the course of duty.

Is Training the Way to Improve Public Agencies' Prevention Efforts?

There is no doubt that, since all of the aforementioned agencies have a potential or actual role in prevention of hazardous material incidents through inspection, their respective staff members should, if they do not already, receive specialized training in hazardous material use, storage, and/or transportation. And while it should not be assumed that the training presently received by inspectors within such agencies

is adequate (see Volume III for examples of data supporting the need for systematic review and improvement of professional training in this field), lack of training in this case does not appear to be the primary limiting factor. Before it is either possible or appropriate to specify training needs within the professions previously cited, prevention activities in general must be given a higher priority than is currently the case. The impact from prevention's relatively lower priority status is felt mainly in the inadequacy of resources (time, money, staff) that is allocated to it. The lack of proper training can therefore be viewed as only one manifestation of the general tendency towards crisis management and away from prevention. If and when this obstacle is overcome, assessment of specific prevention training needs will become a more appropriate activity, and it should and could be handled by existing hazardous material training sources.

In summary, there appears to be a need to improve the training of those who inspect private business' prevention efforts. In this case, it is a need that is outweighed by the need to create--through promoting prevention as a priority for resource allocation--a firm context in which such training can occur.

Recommendations

- 4.4 Agencies having responsibility for inspections and prevention education/information activities, should recognize the importance of prevention and make it a high priority by allocating a greater portion of their resources to it.
- 4.5 Staff with responsibility for prevention (e.g. those who are employees of agencies such as those listed above) should receive specialized training in hazardous materials as a regular part of their professional preparation.

ASSESSMENT OF HAZARDOUS MATERIALS TRAINING NEEDS FOR MEDICAL RESPONSE PERSONNEL

Chemical exposure cases can pose unique problems for emergency medical personnel responsible for transportation, triage, treatment and/or management of victims. Among these problems related to training are:

1. The difficulty of diagnosing and treating chemically exposed individuals--particularly when the chemical source is unknown--the fact that symptoms are often vague (headache, nausea, dizziness) and may be caused by many different individual or combinations of chemicals, coupled with the fact that most medical personnel are not being adequately trained to handle toxic exposures (physicians, for example, usually receive no more than four credit hours of toxicology during their medical training), often results in the failure to recognize problems and treat victims properly.

2. The need for medical personnel to protect themselves from chemical exposure--in order to do so they must have access to and training in the use of personal protective equipment. In addition, they must understand the importance of decontamination of both the victim, before (s)he is brought into the hospital, and of themselves in case of primary or secondary exposure; and
3. The need for access to reliable sources of information--both technical information on health effects and treatment of chemical exposures, and information on standard operating procedures to be followed in case of such emergencies, particularly if they should occur on a large scale.

Current Medical Training

At present, specialized training in the medical management of hazardous materials victims has to be sought out and/or developed by those who have felt the lack of it in the course of their work. A hospital whose management is convinced that it needs to be prepared (through ongoing training) for a chemical emergency is more likely the exception rather than the rule. The individual or group of professionals within a facility who recognize a need for training may be able to attend seminars or (for a few professions) continuing education programs on hazardous materials, but this does not constitute a very systematic or thorough approach to staff training.

Training Needs

The major need which has been nearly universally identified is for job-specific training, preferably from a central source, which would:

1. Identify who needs training--The range of professionals within the medical system who should receive specialized hazardous materials training of some sort needs to be specified. Examples of the range of professions from which such trainees might come include: all emergency room personnel (physicians, nurses, aides, clerks, etc.), ambulance drivers and technicians; paramedics and EMTs; ambulatory care and occupational health physicians and nurses; hospital administrators; medical/health officers, etc; and
2. Identify and match professional responsibilities to the specific contents of hazardous materials training for the various professions identified. Such subjects may include (depending upon the individual's job) some or all of the following: triage, treatment and medical management of victims; use of personal protective equipment; decontamination; sources for technical help and information (e.g. San Francisco Poison Control Center); standard operating procedures for chemical emergencies, etc.

Recommendations

- 4.6 Medical response personnel, in order to protect the health of their patients and themselves, should receive job-specific hazardous materials training from a central source which would: identify who needs training; match professional responsibilities to specific contents of training; support adoption of standards for professional preparation which include such training.
- 4.7 Hospitals providing emergency services should carry out hazardous spill drills as part of their required testing of general emergency medical response capabilities.

APPROACH TO HAZARDOUS MATERIALS TRAINING IN THE BAY AREA

In order to improve current hazardous materials training for the various target groups discussed previously, it is necessary to create some sort of systematic approach to the region's training needs. The characteristics of an ideal system are presented below, along with the options explored for creating such a system.

The following are some principal objectives of a training system:

1. Courses should be locally accessible (both geographically and economically) on an ongoing basis;
2. Curricula should be developed with input from the target group(s) for whom the training is intended;
3. Special circumstances and hazardous materials characteristics of the region should be identified and incorporated into local training courses;
4. An advisory board, composed of multidisciplinary representatives from public and private agencies who handle hazardous materials, should provide guidance and direction for the training system; a primary role for this group could be to obtain agreement upon and standardization of training required to perform specific jobs, as well as standardization of curricula for each level of training (such as are presented in Brief No. 3);
5. Courses should emphasize simulation and hands-on experience, particularly for training emergency response team members and those supervising them; and
6. Participants should be evaluated against performance standards before "graduating"--the development of a certification system could help ensure this.

The following options for implementation were considered:

1. Modify one of the following existing training programs such that it meets as many of the ideal training system characteristics as possible:
 - a. National Fire Academy courses
 - b. California Fire Academy courses
 - c. California Highway Patrol/State Fire Marshal courses
 - d. Community College courses
2. Create a new regional training center that satisfies the sub-committee's recommendations for the ideal training program and uses existing local resources to the fullest extent possible:
 - a. Colorado Training Institute
 - b. Texas A&M University
 - c. Safety Systems, Inc.

Many of the features of a comprehensive regional approach to hazardous materials training presently exist in the Bay Area. Based on an analysis of the relative strengths and weaknesses of each of these, the best option for improving hazardous materials training in the region is to implement the system through the local community colleges. Specific options for developing the system are presented below and discussed further in Volume III.

Proposed Regional Training System

Overall Structure

One of the most important considerations to be made in developing a hazardous materials training system is the overall structure within which comprehensive and relevant courses could be offered. The community college system appears to offer several advantages, among which are the following:

- o the system provides enough structure to facilitate, but not hinder, the development of a user-controlled regional training system
- o the system could easily handle the projected volume of participants
- o the colleges' offerings are locally available on an ongoing basis
(courses could be offered at various campuses, depending on local needs)

- o there is flexibility to allow for offering courses in-house and/or at particularly convenient times (e.g. evenings)
- o classroom facilities are available
- o the system is experienced in developing and offering technical, professional training
- o the possibility of tailoring courses specifically for local needs is good
- o there have been efforts to standardize some professional training courses, so the mechanism and procedures for expanding this process exist
- o the system is not tied to or identified with any one area of professional expertise and so is less likely to focus inappropriately on the needs of one target audience over another.

Design and Implementation

The overall training system's design and implementation would be directed by a multi-disciplinary board composed of representatives from public and private agencies with responsibility for handling hazardous materials. An example of the range of fields from which the composition of such a board could be formulated include:

- o fire departments
- o offices of emergency services
- o law enforcement
- o health/medical organizations
- o public works
- o local industries
- o state and local government agencies

The board, whose membership would be kept to a small, manageable size, would meet periodically to review all phases of the system's development and implementation and would have overall authority for curriculum and policy decisions. In cases where specific technical information and/or guidance is needed, technical advisory committees could be convened to serve the board.

In summary, the community college system provides a relatively unfettered vehicle for the development and implementation of a user-controlled, regional hazardous materials training system.

Advantages of a Regional Training System

Two main factors, one qualitative and one quantitative, must be taken into account in analyzing the benefits to be derived from the development of a regional training system:

1. Lower costs: The rates which would cover the cost of providing a better regional training system--one which meets the recommendations identified in this plan--are equivalent to or lower than most of the courses to which local agencies are now sending their employees. In fact, since most of the existing courses which are thought to be worthwhile are not local, there are added expenses such as travel, room and board, lost time from work for the participant, extra shifts (at higher wages) for remaining employees, etc., which must be added into the total training expenses for an agency. A system that is locally available on an ongoing basis would cut down these hidden expenses by allowing participants to remain in the area where they live and work, and by offering courses at times which minimize time lost from the job (e.g. evenings, weekend seminars, etc.). Further cost savings could be passed on to participants in the form of lower rates if, as has been the case for several other training programs, support from interested public and private organizations (e.g. donations of equipment, facilities and/or loaning the experts on their staff as instructors) is forthcoming.
2. Improved quality and quality control: The first part of this advantage comes merely from the creation of a system at all--at present there is no system, resulting in inconsistency in the quality and quantity of hazardous materials training received by local trainees. Second, a system which is designed and directed by a group of local experts, and which provides courses for a local target audience based on an understanding of how the hazardous materials problem manifests itself in this particular region, will provide more relevant training for the agency's money than any other existing source. Most of the courses now available, locally and nationally, are of necessity general enough in scope so as to be applicable to audiences from disparate geographical regions. Another frequently mentioned complaint about current courses is their inferior quality; a regional training system under local control would provide a mechanism to ensure that the courses' subject matter, format, instructors, etc., are meeting local needs and standards of quality. Finally, a regional training system, by providing a focal point and source for hazardous materials training, would help to prevent the costly duplication of efforts which has resulted in many of the training problems with which this region has been faced.

Recommendation

- 4.8 In order to improve hazardous materials training in the Bay Area in the most cost-effective and efficient manner, a regional hazardous materials training system should be set up through the local community colleges. The system should be designed and implemented according to the guidelines described above.

CHAPTER VIII

LIABILITY AND FINANCING

TORT LIABILITY FOR HAZARDOUS MATERIALS SPILLS AND SPILLS RESPONSE

This section introduces the general concepts underlying liability of both the "spiller" and the "spill response team."

Liability for "pre-spill" handling of hazardous materials is not discussed. There are numerous federal and state statutes setting forth technical specifications for the manufacture, packaging, labeling, storage, handling, and transportation of specific chemicals and materials. Failure of a manufacturer, handler, transporter, or warehouse of such materials to comply with the statutory requirements may give rise to liability for criminal penalties or civil damages. Although the specific liabilities are outside the scope of this plan, such statutory requirements may form part of a basis for recovery of damages resulting from a spill incident.

Discussion

Spiller Liability

A spiller may be liable, i.e. responsible for damages resulting from a spill, under one of three legal theories:

- (1) common law nuisance.
- (2) common law negligence, or
- (3) statutory liability.

Under California Civil Code §3497, "[a]nything which is injurious to health, or is indecent or offensive to senses, or an obstruction to the free use of property so as to interfere with the comfortable enjoyment of life or property, or unlawfully obstructs the free passage or use, in the customary manner, of any navigable lake, or river, bay, stream, canal, basin, or any public park, square, street or highway, is a nuisance." Notwithstanding the simplicity of the statutory definition, the term "nuisance" is so loosely used that its application to specific situations is extremely difficult to predict.

The deposit of materials which interfere with land use is the most obvious and common type of nuisance. In some situations, a spill incident may have this effect. See Ambrosini v. Alisal Sanitary District (1957) 154 Cal. App. 2d 720, 317 P.2d 33 and Turlock v. Bristol (1930) 103 Cal. App. 750, 284 P. 962.

In other instances, a spill incident may, without directly damaging or preventing use of the land, disturb or prevent its comfortable enjoyment. For example, the spread of noxious odors from a spill would apparently be a nuisance. See Wade v. Campbell (1962) 200 Cal. App. 2d 54, 19 Cal. Rptr. 173.

A nuisance may either be public, affecting any considerable number of persons (Cal. Civil Code §3480), or a private nuisance (Cal. Civil Code §3481). A public nuisance may only be abated by civil or criminal actions brought by public officers, unless a private person is specially injured by the public nuisance. Apparently, most spill incidents with which the Task Force would be concerned would be public nuisances.

In a suit based on nuisance theory, the crucial question is whether the actions complained of constitute a nuisance. If the public entity can successfully sustain an argument that the spill incident was a nuisance, as defined under Cal. Civil. Code §3479 (i.e., it had the effects and consequences outlined in that code section), then the manner in which the defendant carried out the activity is irrelevant. The fact that the spiller exercised all due care or even great care is no defense. See Judson v. L.A. Suburban Gas Co. (1910) 157 Cal. 168, 106 P. 581. However, as noted above, application of nuisance law is not a straightforward definitional task. Courts will balance the harms incurred by the conduct giving rise to the nuisance against the utility of the conduct.

The available remedies based on nuisances is the most important limitation on use of a nuisance theory to recover costs resulting from spill incidents. Preliminary research indicates that a public entity may abate or enjoin a nuisance. However, it may recover the costs of abating a nuisance only by placing a charge against the property of the individual responsible for it. Application of this rule in a highway spill incident is unclear. In practice, Caltrans attempts recovery of damages from the party at fault or the State bears the burden of cleanup. In any event, the public entity having jurisdiction may exact the criminal misdemeanor penalty provided by law.

The second basis for recovery would be common law negligence. If a materials handler were negligent in packaging, storing or transporting hazardous materials, and a spill were to result, individuals, including public entities, suffering injury would be able to institute a suit for damages based on negligence. The legal concept of negligence is based on the spiller's duty, the breach of that duty and the injury resulting therefrom. The spiller owes a duty of due care in its handling of the hazardous materials. If it fails to exercise due care, i.e., it acts negligently, it is liable for the damages resulting from its negligence.

The standard of care that the spiller must exercise, and whether its actual behavior fell below that standard, is a question of fact to be determined by a court in each instance. If a public entity can successfully argue that the spiller was negligent, it may recover clean up costs, and other costs necessary to "make the public entity whole" from the spiller.

The third basis for recovery would be federal, state, and local statutes, and ordinances imposing liability for spills. Local laws are effective only to the extent not "preempted" by state and/or federal law, and state law is effective only to the extent not preempted by federal law. This memorandum does not attempt to survey existing laws on this topic. However, the Task Force should be aware that hazardous materials and statutes generally operate in one or more of the three following ways:

- (1) establishing a standard of care;
- (2) imposing criminal penalties;
- (3) imposing strict liability.

Some statutes serve solely to define the measures a hazardous materials handler must take in order to insure safe packaging, transportation, storage, and handling of that material. The statutes may not state that failure to comply with such technical standards would automatically impose liability for damages on the spiller. However, if the public entity were to institute a suit for negligence based on a spill, the statutory technical standards may be introduced as evidence that the spiller did not exercise all due care in its handling of the materials. The statutory standards are not determinative of the question of negligence. A spiller may fail to meet the statutory standards but, nonetheless, still have acted reasonably. In the reverse, the spiller might have met all statutory standards, but still be negligent.

The statute may establish technical standards for handling hazardous materials, and simultaneously impose strict liability on a spiller or other hazardous materials handler for failure to comply with those standards. In that instance, if judicial determination of negligence is not necessary, a mere showing that the spiller or handler did not fulfill the technical standards established by statute would be sufficient to give rise to the liability provided by the statute.

The statute may provide for criminal penalties. Such penalties are usually a fixed amount or within a fixed range with final determination by the court.

In some statutes, the penalty provided for is the actual damage caused by the spill and/or the costs incurred in cleaning up the spill. The Federal Superfund is one example.

Public Entity Members of the Spill Response Team

The liability of California public entities for injuries caused by them is governed solely by statute. In the absence of a specific statute, public entity liability is governed solely by the California Tort Claims Act, California Government Code 810, et. seq. (Act).

Under §811.2 of the Act, "public entity" is defined. Although there are no specific rulings on this point, it appears that a volunteer fire department would not qualify as a public entity. Therefore, its liability in responding to a spill incident would be the same as that of a private individual.

The language of §815 of the Act appears to state that the public entity is not liable for tort damages unless otherwise provided for by statute. However, courts have frequently referred to the policy believed to underlie the statute, i.e. liability is the rule, and immunity the exception. See Baldwin v. State (1972) 6 Cal. 3d 424, 99 Cal. Rptr. 145; Johnson v. State (1968) 69 Cal. 2d 782, 73 Cal. Rptr. 240, and Ramos v. Madera (1971) 4 Cal. 3d 685, 94 Cal. Rptr. 421.

Section 815.6 of the Act imposes liability for a public entity's failure to discharge a "mandatory duty imposed by enactment that is designed to protect against the risk of a particular kind of injury," unless it establishes that "it exercised reasonable diligence to discharge the duty." This statutory liability is the one that is potentially most pertinent to the situation, wherein a public agency responds to a spill incident.

Under California Vehicle Code §§ 2453 and 2454, the California Highway Patrol (CHP) shall serve as "statewide information assistance and notification coordinator for all hazardous substance spill incidents occurring on highways" and shall "establish a single notification mechanism to serve as a central focus point for a hazardous substance spill response system." Further, the "authority for management of the scene of an on-highway hazardous substance spill or disaster shall be vested in the appropriate law enforcement agency having primary traffic, and rescuative authority on the highway where the spill occurs."

It would appear that the CHP and local law enforcement agencies have a mandatory duty to respond to, implement a notification network for, and assume control of a spill incident on roadways within their respective jurisdictions.

The "shall" in each of the pertinent sections may be interpreted as not imposing a mandatory duty on those law enforcement agencies. For example, it may be argued that in the context of those code sections, "shall" refers to exclusivity, i.e., the law enforcement agencies, to the exclusion of other agencies, shall be the entity responsible for responding to establishing communications for, and assuming control of a spills incident. The State Attorney General has issued an opinion stating that that is one of its interpretations of the sections.

The mere use of the word "shall" does not impose a mandatory duty. Morris v. Marin (1977) 18 Cal. 3d 901, 136 Cal. Rptr. 251, 257 n6. Finding of a mandatory duty is a case-by-case interpretation left to the courts.

In the "worst case" (for public entities responding to the spill), the "mandatory duty" includes the responsibility for correctly handling spill incidents. In effect, a spill response team would be guarantors of the effectiveness of the spills response. The response team would be liable for any damages resulting from its mishandling of the spill.

Apparently, the activities of a public entity responding to a spill incident which are not characterized as "a mandatory duty" may be immune under § 820.2 of the Act which provides immunity for "discretionary acts." However, the immunity does not extend to instances in which a "special relationship" exists between a public entity (or its employees), and an injured third party. See Tarasoff v. Regents of University of Cal. Univ. of Cal. (1976) 17 Cal. 3d 425, 131 Cal. Rptr. 14; Morgan v. Yuba (1964) 230 Cal. App. 2d 938, 41 Cal. Rptr. 508; Savah v. Fuller (1967) 249 Cal. App. 2d 281, 57 Cal. Rptr. 312, and Mann V. State (1977) 70 Cal. App. 3d 77, 3139 Cal. Rptr. 82.

This "special relationship" may exist between a spill response team and all third parties in the vicinity of a spill. It may be cogently argued that the presence of a spill response team creates a relationship of special dependency between itself and the third parties in the vicinity of the spill. Such third parties are completely reliant upon the spill response team for advice on how to proceed. Any negligent act on the part of the spill response team which causes harm to such a third party may give rise to liability for damages.

Private Entity Members of the Spill Response Team

Some members of the spill response team will be private entities, i.e. volunteer fire departments, industrial spill response teams, consultants under contract to the public entity, and "good samaritans."

The private entity acting as an independent contractor to the public entities responsible for responding to the spill incident may not take advantage of that public entity's immunities from tort liability. However, the public entity is not "shielded" from tort liability merely by transferring responsibility to an "independent contractor."

In instances in which an independent contractor is acting under contract to a public entity, the common law rules of liability between a principal and the independent contractor apply. The general thrust of court decisions on the topic is that a principal is liable for the negligence of an independent contractor. The judicial policy for such liability is that the principal is best able to protect itself by requiring the independent contractor to provide protection for both the contractor and the principal in instances in which the negligence of the contractor causes harm.

Again, the question of whether an independent contractor has been negligent is fact dependent and determined in a case-by-case basis.

There is apparently no statutory exemption from liability for "good samaritans" who provide aid at the scene of a spill incident.

Conclusions

As outlined above, the question of liability is complex and highly dependent on the specific facts of the situation. Some general caveats and recommendations may be made regarding the need for a public entity to obtain insurance protection for certain activities, and to create specific contractual arrangements between itself and private contractors regarding liability.

However, specific strategies on how to recover damages from spillers, and how to prevent the imposition of tort liability in specific response situations are questions that may only be answered within very specific factual contexts. Even then, firm answers may not be forthcoming and would be subject to the evolution of case law.

Recommendations

- 5.1 "Good Samaritan" legislation should be enacted to limit the liability for persons or organizations called upon by the scene manager to provide assistance during an incident. This is to encourage advance planning cooperation and mutual assistance between local governments and persons with equipment, personnel and expertise in handling hazardous material incidents.
- 5.2 Local governments should examine their present insurance policies for adequacy in covering liability for spills incidents and response.

EXISTING FINANCING OPPORTUNITIES FOR LOCAL PROGRAMS

This section outlines various opportunities that are available for financing local pre-incident activities such as planning, training, equipment, inspection, enforcement and public information. Local revenue sources will be particularly important since it is clear that Federal and State funds will not fully finance all the necessary expenses incurred by local government. Mechanisms to recover cleanup costs are very different from financing program costs and are discussed separately.

Federal Pre-Incident Financing

Little Federal assistance is currently available to finance the development of local hazardous spill programs. The Federal Superfund--under the Comprehensive Environmental Response, Compensation and Liability Act of 1980--provides some funds for emergency response to and cleanup of hazardous substances, but not for pre-incident activities.

The U.S. Department of Transportation (DOT) recently funded the Bay Area and five other demonstration projects to develop spill prevention and response plans. In the past, DOT has also provided seed money for a regional training center in Colorado and for regional planning efforts in the Puget Sound Area. However, it is unlikely that further funds will be available for planning or training in the near future.

The Federal Emergency Management Agency (FEMA) does provide some matching funds to support State/local nuclear attack preparedness. In practice, this money is used to support general emergency preparedness, of which hazardous spills could be a part. Most County Offices of Emergency Services and a few city emergency service offices (i.e., San Jose and Livermore) presently receive these funds. Apparently, agencies not now receiving these funds have no immediate chance of getting them. However, this could be subject to change.

These funds are now being distributed by State OES to local governments participating in the FEMA emergency program on a 70% local/30% Federal match basis (under authorizing legislation could be 50:50). The exact amount of funds to any agency varies depending on staff positions and population. From \$2 to \$7 million is available statewide for local governments.

Lately funds have been available only for salaries and some expenses. No funding has been available for equipment purchases, except for communication gear. These funds could not be used for cleanup.

A related benefit to local agencies participating in FEMA programs (requiring annual planning and evaluation) is the opportunity to acquire surplus Federal equipment and supplies.

State Pre-Incident Financing

Senate Bill 618 (enacted in 1981) created a \$10 million State Superfund financed by a flat fee upon hazardous waste landfill disposal. Most of this money will be spent on remedial action and emergency response, however some money has been specifically earmarked for pre-incident activities: \$800,000 has been allocated for State and local emergency response equipment; nearly \$300,000 would go to the CHP to train State and local response personnel; and \$83,000 would go to the State Office of Emergency Services for notification and response planning.

Representatives from the Spills Task Force had been working with the State to develop criteria for allocating equipment funds,

Assembly Bill 2408 (enacted in 1980) may provide both a source of revenue for the enforcement activities of local health officers and a means to recover costs of local prosecution of hazardous waste law (including spills). Funds are derived from successful enforcement action brought at the request of the State Department of Health Services.

Regarding reimbursement for the local costs of prosecution, the State Department of Health Services must pay to the jurisdiction bringing the action, one half the penalty awarded or the actual costs of prosecution, whichever is less.

Local Pre-Incident Financing

The following types of financing mechanisms of local jurisdictions (i.e., city, county and special districts) are reviewed:

- o taxes
- o fees and service charges
- o fines and penalties
- o bonded indebtedness
- o other sources (includes investment earnings, contributions from jurisdiction-owned enterprises, pay-as-you-go financing, promissory notes for short-term debts)

Each description includes a suggestion as to the appropriateness of the mechanisms for financing and/or recovery of costs in connection with spill prevention and response measures.

Taxes

Jurisdictions may raise revenues by levying certain local taxes. General property and sales and use taxes make up the bulk of locally generated tax revenue for California cities. Most local governments, however, already receive the most significant share of funds from Federal and State intergovernmental transfers (such as State subventions

and Federal revenue sharing) and discretionary grants. Compared to cities, county governments are generally more dependent on Federal and State funds since they are responsible for administration of health and welfare programs, and since most lack independent revenue raising capabilities available to charter cities.

Property taxes are limited to 1% of assessed valuation, under provisions of Article XIII A of the Constitution, added by Proposition 13. This limitation does not apply to indebtedness approved or incurred prior to July 1, 1978, thus the effective property tax rate is generally higher. Use of revenues from property taxes is unrestricted.

Sales and use taxes are levied on sales in a jurisdiction. They represent the single largest source of local generated revenue for most California cities: 4 3/4 cents of the sales tax on a dollar goes to the State, 1 cent goes to local government, and 1/4 cent goes to local transportation uses. Use of the 1 cent tax revenue for local governments is unrestricted. In the BART counties (San Francisco, Alameda, and Contra Costa) there is an additional 1/2 cent tax that goes to BART.

Special taxes are authorized under Article XIII, but such taxes must be approved by two-thirds of the voters. The definition of what constitutes a special tax requiring approval is not clear, although the Legislature has defined any service charge or fee that exceeds the reasonable cost of providing the service for which the charge or fee is levied as a "special tax."

Some special taxes have been approved in cities, although many have not. The principal obstacle to enactment of such taxes is the two-thirds requirement; even Proposition 13 didn't receive such an approval.

Benefit assessment districts may be formed under State law for police and fire protection services. A benefit assessment is levied against properties benefitted; such assessments are not deductible for income tax purposes. The Legislature is now considering several bills to rewrite the benefit assessment district concept because existing benefit assessment laws contain conflicting and confusing provisions.

Other taxes include business license taxes, franchise taxes, property transfer taxes, utility taxes and transient occupancy taxes. These taxes are usually levied on a percentage basis for a service or a transaction. The amount of revenue generated from these taxes is dependent on the level of that activity (e.g. number of property transfers or number and type of new business enterprises).

Potential for Spills Prevention and Response Activities: Use of funds from general taxes is unrestricted, but these tax revenues go into a jurisdiction's general fund. A local spills program would have to compete with other priorities for a budget allocation.

Charges for police or fire services or so-called special taxes may have potential for prevention and response efforts. An advantage of special taxes is that they can be directly imposed on those benefiting from the service.

Fees and Service Charges

All jurisdictions may levy fees or user charges which are limited to the cost of regulatory activities or services provided, unless specific statutory authorization provides otherwise.

Service charges are imposed to support services to individuals. Fees may be levied or increased only by ordinance or resolution. There are limits on a jurisdiction's ability to set a charge above the actual cost of the service, as specified in Article XIIIB of the Constitution. Use of the funds is unrestricted. However, a jurisdiction may choose to allocate the revenues to a restricted fund. Types of service charges include: park and recreation, public safety, and public works. Specific examples are special fire services fees, fire inspection fees, special police protection fees, refuse disposal fees. Other types of service charges include connection (hook-up) fees and stand-by charges for sewer and water services.

Fees for permits and licenses represent a source of revenue and a way to cover costs of regulatory activities. In the case of new development and construction, typical processing and development fees will include subdivision development fees, park dedication fees, fire protection and community facilities assessments, and school fees which are charged on a basis of the number of dwelling units or some equivalent in the development. Other fees include building permit fees, engineering inspections and utility permits. Fees such as annexation assessments or drainage fees are often charged on the basis of the number of acres developed.

Allocation of revenue generated by fees and service charges is unrestricted.

Potential for Spills Prevention and Response Activities: Use of service charges and fees appears to have some potential for use in local spill programs. There is already a history of charges and fees for police and fire support services and inspection programs. Fees and charges may be imposed directly on the regulated party or the recipient of the local service. The City of Sunnyvale has passed an ordinance setting a permit fee schedule to fund spills activities.

Fines and Penalties

Fines and penalties may be attached to local codes and ordinances and collected for non-compliance or violation. Use of revenue from vehicle code violations is restricted to traffic safety purposes. All other fines may be used for any legal municipal purpose.

Potential for Spills Prevention and Response Activities: Fines and penalties offer some opportunities for spills activities as long as they are set high enough to cover full enforcement cost and thus serve as an incentive for prevention. Revenue from fines and penalties may be an unpredictable and variable form of funding. The City of San Rafael has set fines for violations to the Uniform Fire Code.

Bonded Indebtedness

A general obligation bond is one which is secured by the taxing powers of the jurisdiction. Since Proposition 13, general obligation bonds have been effectively removed as a revenue source for programs. General obligation bonds can be redeemed through revenue not directly derived from property taxes, e.g. revenue from sources such as sales taxes or city-owned enterprises (water, electric, sewers, parking, etc.). Such revenue producing activities are used in lieu of a direct property tax for debt service.

Improvement district bonds are those in which principal and interest are payable from property taxes or assessments levied only on a less than jurisdiction-wide district, e.g. parking district and lighting district.

Revenue bonds may be issued by local agencies and are generally repaid through enterprise activities generating a predictable cash stream--e.g. charges for electricity or water.

Potential for Financing Spills Prevention and Response: Generally, bonds are used to finance capital improvements and often require voter approval. Most measures under spills prevention and response probably will not qualify under the definition of capital improvements. Bonding thus appears to have low potential for financing spills programs.

Other Sources

Other local financing possibilities derive from a jurisdiction's ability to borrow, invest, and undertake revenue-producing enterprises.

Investment earnings result from the jurisdiction's use of idle funds for investment purposes. Local governments are restricted by the Government Code to relatively safe investments. This means of producing local revenue also assumes that idle funds are available. Use of the revenue produced is unrestricted.

Contributions from jurisdiction-owned enterprises may be derived from a service or facility that generates revenue through charges to the public. Charges may cover the cost of operation and maintenance and, in addition, make a contribution to the general fund. Use of these funds is unrestricted.

"Pay-as-you-go" financing is the term that describes the use of cash reserves to pay for capital improvements. It is often used when capital needs are relatively light and the agency has a surplus of money. This surplus can be accumulated if the agency receives more revenues from property taxes, service charges, connection charges, and other sources, than budgeted.

Promissory notes for short-term debts is a form of borrowing on the private capital market that is a common financing mechanism used by local agencies. Local agencies can issue tax anticipation notes, for example, under State Senate Bill 90 passed in 1972. The amount of principal that can be borrowed is limited to 85% of the anticipated tax revenues, and the notes must be retired before the end of the fiscal year in which they were issued.

Most local jurisdictions can also issue other short- and medium-term notes. These notes will mature in two to ten years, and voter approval is not required. There are limitations on the issuance of such notes, and the law varies for cities, counties, and different types of special districts. Typically, the enabling legislation will limit the amount of principal that can be borrowed, the term of the debt, and the maximum interest rate.

Potential for Spills Prevention and Response Activities: Prevention and response activities will have to compete with other local funding needs with respect to funds from these sources. Its potential is therefore low.

Private

Little is known at this time as to the extent of existing funding assistance from private industry to local governments. Cooperative planning efforts between industry and government are growing throughout the Bay Area. This can be in the form of direct money support, technical assistance, and/or equipment. For example, some cleanup companies are housing response equipment with local fire departments for ready assistance during an emergency.

Leases are useful devices for obtaining equipment that cannot be purchased directly--for whatever reason. It is possible to establish an investment arrangement so that private companies or individual investors (through certificates of participation) may purchase equipment, which is then leased to the public agency. This method has been employed by local agencies (e.g. Santa Rosa, Hayward, Oakland) for equipment such as computers (Hayward), public buildings (Santa Rosa), and rehabilitation of public buildings (Oakland). This method of financing would allow industries handling or using hazardous materials to contribute to the solution of the spills problem. Payments on leases are generally financed out of current revenues.

Cleanup Cost Recovery

Mechanisms to pay for spill cleanup costs are much different from the pre-incident financing mentioned above. Cleanup costs are unpredictable as to when they will occur and how much they will be. The only certainty is they are usually greater than what can be absorbed by community general funds or typical financing.

Where possible, the party at fault is responsible for paying cleanup costs. However, since timely response often requires actions to be taken and costs to be incurred before agreements can be reached with responsible parties, it is the practice of many local and State agencies to do what is necessary at the time and seek redress later. Some private emergency response companies will respond in good faith and contain a spill before deciding who will pay their bill. However, before initiating cleanup operations, they must have a commitment that someone will pay the bill. If the party at fault cannot be found or does not have enough money, the responding agency requesting cleanup services may be stuck with the bill. Even if the party at fault eventually pays, a local jurisdiction may be faced with paying the bill until they can receive reimbursement from the party at fault. Because of this burden to State and local governments, several special funds have been created to help cover cleanup costs. Sources and uses of these funds are presented in Table VIII-1, with the following brief description of Federal and State Superfunds and local cleanup funds.

Federal Superfund

The Comprehensive Environmental Response, Compensation, and Liability Act of 1980--commonly known as Superfund--is designed to:

- o Provide funds for emergency response to and cleanup of hazardous substance releases into the environment.
- o Enable the Federal government to recover from responsible parties the costs it incurs in responding to and cleaning up hazardous substance releases.
- o Provide funds for cleanup of inactive hazardous waste disposal sites and post-closure liability for hazardous waste disposal facilities that were managed under the Resource Conservation and Recovery Act.

The Act sets up two distinct funds to accomplish these goals. The \$1.6 billion Hazardous Substance Response Trust Fund is derived from two sources: 87.5% is from taxes imposed over a five-year period beginning April 1, 1981, on crude oil and inorganic and organic petrochemical feedstocks while 12.5% is from Federal government appropriations. The \$200 million Post-Closure Tax and Trust Fund will be derived from taxes on hazardous waste disposal beginning September 30, 1983.

No Federal remedial cleanup actions can be taken unless the State enters into a cooperative agreement with the Federal government assuring that the State will, (among other requirements), pay 10% of the remedial action's cost or 50% if the facility is State owned. This was a principal rationale for the creation of the California State Superfund. However, there are no requirements for a State cooperative agreement or match in order to use the Federal Superfund for emergency action.

STATE AGENCIES (Function)	Fees, Fines or Assessments	Transportation Fund		General Fund			W.Q. Cont. Fund	Fish & Game Pres. Fund	Superfund	Federal Funds			
		Motor Vehicle Account	State Highway Account	Haz. Waste Control Account	Well Abandonment & Pollution Abatement	Other				RCRA Grants	Superfund	Oil & Haz. Sub. Revolving Fund	FEMA Disaster Funds
California Highway Patrol (Traffic Regulation & Management)		X											X
Dept. of Conservation (Oil & Gas) (Oil Pollution & Cleanup)	X				X								
Dept. of Fish & Game (Investigate Pollution Incidents)	X						X	X				X	
Dept. of Food & Agriculture (Consult on Pesticide Incidents)						X							
Dept. of Forestry (Life Threaening Problems & Spills)						X							X
Dept. of Health Services (Advise After Cleanup, Investigate sites)	X			X					X	X	X		
Dept. of Industrial Relations (Technical Advise and Regulation)						X							
Dept. of Transportation (Highway Maintenance)			X										
Office of Emergency Services (Contingency Plan)						X							X
Office of Fire Marshal (Investigate, Educate)						X							
State Water Resources Control Board (Investigate, Sample, Test, Cleanup, Advice)	X						X				X	X	
State Lands Commission (Investigate, Sample, Test, Cleanup, Advice)	X												

TABLE VIII-1. SOURCES OF FUNDS FOR HAZARDOUS MATERIALS INCIDENT RESPONSE

From State of California Hazardous Material Incident Contingency Plan.

Under the Superfund, liability does not include damages to the public for loss of property or personal injury. Persons who suffer such losses must proceed under the common law. The U.S. Attorney General's office is responsible for having a year-long study prepared on the adequacy of common law and statutory remedies for providing legal redress for harm to man and the environment from hazardous substances releases. This is scheduled to be completed shortly.

A fine of up to \$5000 a day can be levied for willful violation of or failure or refusal to comply with a court order requiring whatever action is necessary to abate an actual or threatened release of hazardous substances from a facility. If persons responsible for actual or threatened hazardous substances releases refuse to obey orders to clean up or take remedial action, they may be liable for three times the cost incurred by the government.

Since this fund has national application and is also directed at the cleanup of abandoned waste sites, its application is limited to "major" spill events. Details regarding dispersal of Federal Superfunds must be worked out with the on scene regional EPA emergency response coordinator.

It is important to note that there is a sunset provision for the Federal Superfund. Authority to collect taxes under the Act expires on September 30, 1985, or when the sum of the amounts collected under the Act totals \$1.380 billion, whichever comes first.

State Superfund

Senate Bill 618 (1981) created a State Superfund financed by a flat fee on hazardous waste landfill disposal. The fund is used to meet Federal Superfund matching requirements as well as for victim's compensation, emergency response, epidemiology studies and additional cleanup. This fund is being administered by the State Department of Health Services (DHS). Of particular note is the proposed emergency reserve fund. Guidelines are presently being developed by the DHS for accessing these funds. At this time, it is uncertain as to what type of spill will be eligible for funding. Some consideration is being given to requiring some local match for receipt of funds.

Local Cleanup Funds

Individual jurisdictions can establish similar funds to expedite timely response. For example, Contra Costa County has established a fund of \$25,000 for cleanup of hazardous waste spills when no other agency has jurisdiction to proceed with immediate cleanup action. At present, authority to access these funds belongs to the County Health Officer. The \$25,000 was transferred from the County's general fund reserve for contingencies.

CONCLUSIONS

From this overview, the following conclusions may be made:

- o There is little funding available at the State or Federal level for local hazardous spill programs, with the possible exception of equipment monies from the State Superfund.
- o Several potential financing mechanisms are available at the local level, e.g. special taxes, service fees, and fines.
- o A strong local commitment is required for local financing to be viable.
- o Local financing for prevention and response will likely be limited in the short-term because State and Federal funds (which local governments have depended on for many services) are being severely reduced.
- o To the extent that financing for local fire and police services may be shifted from local general funds to benefit-assessment funds, there will be greater potential for hazardous materials programs to be supported as an ancillary activity of such services.
- o Equipment purchase (through certificates of participation or other forms of ownership by private companies or investors) and subsequent lease to public agencies may overcome the initial capital expense of establishing a local response program.
- o In terms of cost recovery, local governments will likely bear the initial cost of cleanup for spill response on local streets. In the event responsibility can be assigned by the courts, costs may be recovered. However, local agencies must plan to carry that cost until final court action.

RECOMMENDATIONS

- 5.3 Local agencies should establish a reserve fund or participate in an insurance program in anticipation of spill-related expenditures.
- 5.4 Additional mechanisms should be explored to assist local governments in paying for emergency response and cleanup actions.

CHAPTER IX

CONTINUING PLANNING

INTRODUCTION

One of the primary objectives of this plan is to develop a continuing planning and implementation process--both at the local and regional levels.

The Regional Spill Plan will serve to better coordinate local efforts and present specific recommendations to improve prevention and response. However, the plan cannot stand by itself. To translate plans into action at the local level, detailed agreements on agency responsibilities, training, and resource sharing still need to be developed or revised.

Regionally-applicable programs (such as a training system, resource sharing, and development of intercounty disaster communications systems) also require a continuing, organized effort in order to come into being.

LOCAL COOPERATIVE PLANNING

County Coordinating Councils

As recommended in the State Hazardous Materials Incident Contingency Plan and supported in Chapter VI, local governments are directed to prepare coordinated spill response plans through local Hazardous Materials Planning Advisory Committees. As part of these plans, committees should develop interagency communication systems, training programs, and mechanisms for sharing of equipment and personnel. Presently, each Bay Area county has a Disaster Council staffed by emergency services personnel. However, the membership and powers of these councils vary greatly.

Only in San Mateo County does the Area Disaster Council operate under a Joint Powers Agreement (JPA) among the county and cities. This JPA gives the Area Disaster Organization the power to adopt official plans without requiring separate approval by local governing boards and the Board of Supervisors. The Area Disaster Council is also given authority to command and coordinate local emergency forces during a state of emergency.

In San Francisco's unique city/county structure, disaster planning is provided by interdepartmental committees under the direction of emergency services officials in the Mayor's Office. A hazardous materials committee is chaired by the Fire Department Surgeon. The committee acts principally to advise the Fire Department, but also attempts to coordinate the actions of all response agencies. Plans may be adopted simply by vote of the Board of Supervisors.

All the other Bay Area counties, except Napa and Solano, have formed Hazardous Materials Committees which focus exclusively or primarily on improving response capabilities. These committees can develop or influence county spill contingency plans. However, any contingency plans developed by these committees must be adopted by each local jurisdiction (including the Board of Supervisors for unincorporated areas).

These existing advisory committees are a major step in the right direction. However, they generally fall short of the model envisioned in the draft state contingency plan:

- o Some are ad hoc task forces without permanent standing or official powers (Marin, Contra Costa, Santa Clara);
- o Industry representatives may not be included in the regular membership (San Francisco, Santa Clara);
- o Some are not explicitly charged with revising or improving the entire county contingency plan (Santa Clara).

Several OES officials interviewed have suggested that these committees be given permanent standing (perhaps through existing Disaster Councils). They emphasized that interagency training and contingency planning should be a principal concern of such committees. Industry participation is expected to increase in the future.

In order to strengthen their spills contingency planning capabilities, counties may wish to form or strengthen Planning Advisory Committees under one of two models:

- (1) Under Joint Powers Agreements they could give Hazardous Material Councils or Disaster Councils authority to adopt countywide plans and programs.
- (2) Planning Advisory Committees and Emergency Services Offices could develop tentative plans and programs. These plans and programs would be valid in local jurisdictions only when approved by the governing body through contractual agreements, local ordinance, or resolution.

The Joint Powers Agreement provides the strongest support for multi-city planning efforts. The JPA can define the continuing planning process, including the scope of the coordinating committee's responsibilities and its membership.

However, jurisdiction-by-jurisdiction approval of spill contingency plans may still be desired in some counties. This method is undoubtedly necessary where a great many agencies need to approve the county plan. (For example, Sonoma County has 58 independent fire districts that must approve the county OES plan, but many could not participate in its drafting.)

CHP Interagency Agreements

In line with its role as the statewide highway spills information/assistance coordinator, the Golden Gate (Bay Area) Division of the CHP is promoting the use of Interagency Agreements to guide spill scene actions. A proposed format for Interagency Agreements (drafted by Captain John Hope, Oakland CHP Commander) has been forwarded to the ten area offices to submit to local government agencies. This format focuses on agency responsibilities. It also briefly addresses other incident topics, including command post operations, media relations, communications, incident investigation, containment, and training.

Because the proposed agreement format lacks certain critical elements endorsed by the Response Subcommittee for inclusion in local contingency plans (e.g., listing of public and private resources), it cannot substitute for a complete county contingency plan. However, these interagency agreements could be invaluable in clarifying roles of different agencies, and could at least furnish the "heart" of a county contingency plan.

Several area offices appear to have made significant progress in getting local agencies to endorse their revisions of the agreements. The Oakland Area Office, for example, has already received approval from Oakland and Berkeley. The San Jose Area Office found general approval from local public safety agencies and is working toward agreement with the County Office of Emergency Services. The San Francisco CHP implemented its "Agreement" by requesting changes in the existing city/county contingency plan, since approved by the Board of Supervisors. Similarly, the Contra Costa office is actively involved in further developing the county plan, rather than pursuing its own agreement. Solano is working with local fire departments to develop an agreement.

CONTINUED REGIONAL PLANNING

While most response planning efforts must ultimately be implemented at the local level, a broader, regional approach to planning is still needed to ensure interagency cooperation, minimize duplication of effort and resources and provide for consistent planning throughout the Bay Area. The ABAG Hazardous Spills Project, through the Task Force and subcommittees, has successfully initiated and filled this role. While a firm foundation for planning has been laid and significant progress towards improving prevention and response capabilities has been made, much work remains ahead. As the initial ABAG project nears completion, options for continuing this regional planning should be analyzed.

Benefits of Regional Planning

In terms of its potential for minimizing duplication, a regional approach to planning is particularly important now, given most agencies' diminishing resources in the face of increasingly complex demands for their services. As shown by the ABAG project, if commonly shared hazardous materials problems can be addressed regionally, both planning and implementation can become more cost-effective. For example, the Training Subcommittee identified the fact that responders throughout the region share training needs which can be met by a single, regional training system more cost-effectively and efficiently than the current, duplicative approach wherein each agency develops its own training programs.

Regional planning efforts can also promote greater cooperation among agencies handling similar problems. By providing an opportunity for diverse agencies throughout the region to identify and develop solutions to common problems, important working relationships are established and supported. Such relationships improve interagency communications, promote sharing of ideas, resources and information, and improve cooperation as agencies better understand their role vis-a-vis others.

Finally, coordinated regional planning promotes consistency within and among response plans on the local, regional and state levels; the lack of which has resulted in many of the spill response problems identified during this project. An example is the confusion over scene management responsibilities at the spill site which results from the lack of regionally consistent plans for scene management. In order to correct this problem, the Task Force endorsed the Response Subcommittee's recommendation that an Incident Command System based on FIREScope be used by all local response agencies. It is hoped that once a single system is understood and utilized by all responders, the confusion will be eliminated and spill response will be done in a more effective manner.

Structure and Content of Future Planning

Regarding future regional planning efforts, there are three main issues to be decided: Which organization or entity will assume responsibility for overall coordination in the Bay Area? Upon which topics should future planning efforts be focussed? And under what format can continued regional planning best be conducted?

While decisions on the specific topics and format will evolve under the guidance of agencies participating in continued planning efforts, the following illustrate some possible directions:

1. Topics for regional planning: sharing/coordinating risk assessment activities; analysis of routing issues and options; handling community right-to-know issues; promoting prevention activities (e.g. sharing model inventory/disclosure ordinances); developing a regional training system; sharing response equipment/personnel; planning HAZMAT teams; clarifying roles and responsibilities of public/private sector agencies; sharing technical assistance resources and information; and dealing with liability issues (e.g. development of self-insurance programs), to name a few.
2. Format options for planning: continuation of the ABAG Hazardous Spills Task Force or a similar entity; conducting periodic regional planning workshops or conferences; developing special committees or special purpose associations; and designating a staff person from one agency to act as a liaison between and among agencies.

Regardless of topic or format, the first step in continuing regional planning is to agree upon a single organization or entity whose responsibility it will be to coordinate the effort. To that end, several criteria for selection of an organization and three examples of existing organizations which might be considered will be highlighted briefly.

In order to successfully assume responsibility for coordinating continued regional planning, organizations under consideration should be evaluated against the following criteria:

1. Ability to promote a regional, rather than local or profession-oriented, perspective in problem analysis and planning;
2. Ability to provide financial support (staff, other resources), either by mandate, willingness to provide direct funding, or commitment to seeking grant support;
3. Ability to convene and coordinate the activities of a multidisciplinary planning group whose expertise and authority reflect the problems and needs of the region--an organization which can assume a neutral, facilitative role; and
4. Ability to provide technical assistance in areas crucial to regional and local response planning.

Three existing organizations are briefly discussed below regarding their potential role in coordinating continued regional planning.

The Association of Bay Area Governments

There are several obvious advantages to continuing regional planning under ABAG's auspices: many of the agencies which have participated in the project are the same ones which should be involved in continued planning, and they have already established cooperative working relationships; implementation of recommended programs may be easier due to the access to local agencies and governments afforded by both project participants and ABAG itself; and project participants could continue the work which they have already put a great deal of effort into, thus promoting continuity and consistency in planning and policy recommendations, and increasing the likelihood of implementation. While ABAG would probably meet all of the aforementioned criteria for selection, additional funds would have to be obtained before it could assume responsibility for continuing coordination.

State Office of Emergency Services, Region 2

This organization frequently convenes county Emergency Services Directors from the Bay Area and beyond in order to coordinate general disaster response capabilities. As such, it may be an appropriate agency to assume the role of coordinator of continued regional planning. Since the county Emergency Services Offices are the principal authors of spill contingency plans, the OES regional organization could provide a good forum for discussion of state requirements and county level contingency planning/coordination concerns.

However, according to the Director of Region 2 OES, the state-county OES meetings are not necessarily appropriate for developing such local cooperative response programs as equipment inventories, sharing agreements, etc. Again, additional funding would be necessary in order for this organization to plan effectively for comprehensive regional spills programs.

Government - Industry Associations

Although few exist locally, an association of government representatives and industry chemical specialists could effectively plan for both regional and worksite-specific spill prevention and response programs, as has been demonstrated by the Bay Area Industrial Emergency Council (BAIEC) (formerly the the South County Industrial Emergency Council of San Mateo County). BAIEC has taken a leading role in utilizing this government/industry cooperative approach to address local hazardous material problems in areas such as San Mateo County, where it is seeking support for the development of a comprehensive county response program.

While it has had a specific county focus, BAIEC is expanding, and hopes to establish chapters throughout the entire Bay Area within a year. BAIEC chapters are being developed primarily as independent organizations, but are attempting to share some regional resources (e.g., computer equipment) and address some concerns of regionwide significance. In addition, chapters need to expand their representation to include the various segments of local government, e.g., public works and health.

Until the organization exists regionwide, and until it develops strong regional representation and official government support, BAIEC chapters can be an important component, but not a coordinator, of regional planning efforts.

RECOMMENDATIONS

6.1 Counties with existing Hazardous Materials Planning Advisory Committees should strengthen their capabilities by:

- o giving them permanent status, perhaps affiliated with the Disaster Council;
- o delineating their responsibilities, particularly in contingency plan preparation and interagency training;
- o assuring a wide membership of government and private organizations.

Those counties without committees should form one as soon as practical using the planning and coordination role of local offices of emergency services.

6.2 Wherever practical, these committees or the present Disaster Council should be given the power to adopt official plans through a Joint Powers Agreement. In other counties, local governments are urged to participate fully in committee deliberations and adopt plans as soon as possible.

6.3 After reviewing the CHP Interagency Agreements with the County Hazardous Material Planning Advisory Committees and local offices of emergency services, local agencies should sign and support these agreements as soon as an acceptable contract is developed. These agreements can serve as the cornerstone for revised countywide spills response plans.

6.4 The regional planning process, having successfully coordinated activities of various response agencies, identified common problems and recommended model approaches, should be continued. ABAG should continue to serve as regional coordinator for hazardous spill planning.

The following topics, in particular, have been identified to be addressed in future efforts:

- o additional training for police/fire/public safety offices to improve enforcement of violations of the Hazardous Materials Transportation Act;
- o more detailed assessment of movement of placarded vehicles in order to develop routing plans;
- o central permit offices or cross-referenced permit systems;
- o zoning ordinances revised to reflect prevention needs;
- o use of the civil injunction for multi-agency enforcement proceedings;
- o inventory of local government response equipment;
- o communication;
- o update directory of private response capabilities;
- o evacuation planning;
- o information exchange of new and ongoing efforts in the region (e.g., model plans, ordinances, and agreements);
- o consumer guide to selecting proper response equipment;
- o the development of a resource center/clearinghouse for hazardous materials training including, for example: a lending library of books, films, curricula, course materials; directories of local speakers, instructors, equipment, facilities for loan or rent; and information on training courses currently available;
- o the securing of funds for the development and implementation of a regional system for hazardous materials training; and
- o the development of programs to increase awareness among local decision makers as to the need for improving local hazardous materials training and their role in the process.

CHAPTER X

ACKNOWLEDGEMENTS

This plan was prepared by the Association of Bay Area Governments with a grant from Materials Transportation Bureau, Research and Special Programs Administration, the United States Department of Transportation. Technical assistance and direction was provided by members of Hazardous Spills Task Force and its working subcommittees.

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Bob Eisenman	Kaiser-Permanente
Dennis Fay	Metropolitan Transportation Commission
Mark Green	Raychem Corporation
J.P. Hellman	California Trucking Association
Dietrich Heinritz	IT Corporation
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Roger James	Regional Water Quality Control Board
Eric Klein	TOSCO Corporation
Mary Lewis	Contra Costa County
Matt Mattoon	CHP Motor Carrier Division
Robert N. McDougald	Caltrans
Ed Miller	Bay Area Air Quality Management District
Bob Minucciani	Glidden/BALIA
Lee Mitchell	Napa Fire Department
Gary Rowe	U.S. Coast Guard
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Alan Selditch	Signetics
Rafat A. Shahid	Contra Costa Environmental Health
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J.F. Murphy	Pacific Telephone
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R.D. Streeter	Presidio of San Francisco Fire Department
Lt. Les Wascko	Hercules Police Department
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Kathleen Wager
William W. Ward
Cecil Williams
Harry Zwart

Oakland Fire Department
Alameda County Sheriff's Department
U.S. Coast Guard
Berkeley Fire Department
Spirit Airways
Invac
Richmond Fire Department
San Francisco Fire Department
Vallejo Fire Department
Eden Consolidate Fire
Pacific Gas and Electric
Fairfield Department of Public Safety
Crowley Environmental Services
Oakland Police Department
Redwood City Fire Department
Richmond Police
Sunnyvale Department of Public Safety
California Trucking Association
Chemical Waste Management
California Department of Fish and Game
San Mateo County Office of Emergency Services
Crowley Environmental Services
Contra Costa County Fire District
Assistant District Attorney, Contra Costa County
Bay Area Air Quality Management District
Caltrans
Santa Clara County Office of Emergency Services
Clean Bay
Pacific Telephone
San Francisco Office of Emergency Services
Oakland Emergency Services
CHP - Solano Area Office
Federal Emergency Management Agency
Sonoma County Office of Emergency Services
IT Corp.
Marin County Office of Emergency Services
Napa Fire Department
California Office of Emergency Services
California Regional Water Quality Control Board
CHP - Contra Costa Area Office
East Bay Municipal Utility District
Dow Chemical
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Contra Costa County Office of Emergency Services
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Warren Deutsch	City of Santa Clara
Paul Mac Farland	Richmond Fire Department
Gerald (Jerry) Grey	San Francisco Fire Department
John Hellman	California Trucking Association
John Hope	Oakland Area Office - CHP
John Hoppstetter	General Electric
Hway-Ling Hsu	South County Industrial Emergency Counsel
Bill Kinaman	Santa Clara Co. Trans. Agency
Charles Lee	San Francisco Fire Department
James Lee	San Ramon Valley Fire Department
Glenn Lynch	Berkeley Department of Public Health
Bob McDougal	Caltrans
Jim O'Donnell	South County Industrial Emergency Council
James Rand	Sunnyvale Department of Public Safety
Clay H. Ross	U.S. Naval Weapons Station
Earl Scarbrough	El Cerrito Fire Department
Robert L. Sharps	Petaluma Fire Department
Edward A. Simmons	State Department of Fish and Game
J. Robert Steele	IT Corporation
Norm Stiver	Office of Emergency Services Contra Costa County

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Assistant Executive Director	Eugene Y. Leong

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APPENDICES

APPENDIX A

GOVERNOR'S MODEL DISCLOSURE ORDINANCE



State of California
GOVERNOR'S OFFICE

EDMUND G. BROWN JR.
GOVERNOR

April 10, 1982

In February and March of this year, the Governor's Office co-sponsored four regional workshops on the community's right to know of the use of toxic substances. It was the intent of the co-sponsors to provide an opportunity for the full discussion of a community's need for toxic substances disclosure and to explore how best to provide such disclosure.

The workshops, held in Los Angeles on February 10th, San Francisco on February 17th, Sacramento on March 3rd, and San Diego on March 10th, were immensely successful at advancing the understanding of the issue. The attendance at the workshops indicated the breath of interest in toxic substances disclosure and its importance to the communities of the state. The attendance at the workshops is detailed on page three.

A major conclusion of the workshops was the need for a model "Hazardous Materials Disclosure" ordinance. Most participants felt such a model ordinance was essential to the continuing discussion of this issue. The Governor's Office has responded to that request by preparing the attached ordinance and disclosure form.

By way of an introduction to our model ordinance, I would like to make three points:

1. The ordinance attempts to provide the basic information needed in common by firefighters, health officials, planners, elected officials, and residents. It does not attempt to produce a comprehensive data base from a single disclosure form - it provides enough information to allow all local agencies to begin to ask educated questions to address their specific needs in detail (Section 140 (b) of the ordinance requires additional information be supplied to local agencies upon request).

2. The ordinance requests information on hazardous substances and hazardous wastes used and disposed of in a community. It attempts, to the extent possible, to build on existing systems of toxic substances disclosure (eg., the California "worker's right to know" law and the hazardous waste manifest system).

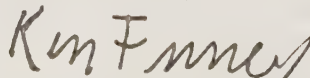
3. The ordinance addresses in detail the issue of trade secrecy. The system for protecting trade secrets which it proposes is based on existing state and federal law and parallels the trade secrecy provisions of other toxic substances disclosure laws.

Many cities and counties face special concerns regarding the presence of hazardous materials in their community. In many instances it will be necessary to make changes in the model ordinance to address those concerns. Experimentation with the provisions of the Hazardous Materials Disclosure ordinance is desirable in these early efforts to provide local officials and residents with the information they need. We hope the attached model ordinance will provide some structure to these first efforts to ensure the community's right to know.

Please contact us at (916) 322-7691, Governor's Office, State Capitol, Sacramento, CA. 95814, if you have any questions regarding the model ordinance or the activities of other local governments in this area. Our work on toxic substances control keeps us current on the activities of local governments in the areas of hazardous material disclosure and hazardous material management.

We would like to take this opportunity to thank the following co-sponsors for their contributions to the success of the workshops: the League of California Cities, the California County Supervisor's Association, the California Health Officer's Association, the Federated Firefighters of California, and the American Planning Association. We would also like to thank the following additional co-sponsors of the Sacramento workshop: the Golden Empire Health Services Agency and the U.C. Extension Service, Davis.

Sincerely,



Ken Finney
Assistant to the Governor
for Toxic Substances Control

April, 1982

ORDINANCE NUMBER _____
(County Board of Supervisors Series)

AN ORDINANCE OF THE COUNTY BOARD OF SUPERVISORS
ADDING CHAPTER 00, ENTITLED
HAZARDOUS MATERIALS DISCLOSURE

THE COUNTY BOARD OF SUPERVISORS DOES ORDAIN AS FOLLOWS:

SECTION 1. Chapter 00 is hereby added to
Article _____ of the Municipal Code
to read as follows:

Chapter 00 -- Hazardous Materials Disclosure.

Section 100. Findings and Purpose. The County
Board of Supervisors finds and declares:

(a) Hazardous substances and hazardous wastes present in the community may pose acute and chronic health hazards to individuals who live and work in this County, and who are exposed to such substances as a result of fires, spills, industrial accidents, or other types of releases or emissions.

(b) The people who live and work in this County have a right and need to know of the use and potential hazards of hazardous materials in the community in order to plan for and respond to potential exposure to such materials.

(c) Basic information on the location, type, and the health risks of hazardous materials used, stored, or disposed of in the County is not now available to firefighters, health officials, planners, elected officials, and residents.

(d) It is the intent of the County Board of Supervisors that this Chapter recognize the community's right and need for basic information on the use and disposal of hazardous materials in the County and that it establish an orderly system for the provision of such information.

(e) It is further the intent of the County Board of Supervisors that the system of disclosure set forth in this Chapter shall provide the information essential to firefighters, health officials, planners, elected officials and residents in meeting their responsibilities for the health and welfare of the community in such a way that the statutory privilege of trade secrecy is not abridged.

Section 110. Definitions. For the purpose of this chapter the terms listed in this section shall be defined as follows:

(a) "CAS number" means the unique identification number assigned by the Chemical Abstracts Service to specific chemical substances.

(b) "Chemical name" means the scientific designation of a substance in accordance with the International Union of Pure and Applied Chemistry or the system developed by the Chemical Abstracts Service.

(c) "Common name" means any designation or identification such as code name, code number, trade name, or brand name used to identify a substance other than by its chemical name.

(d) "Disclosure form" means the written request for information prepared by the County health officer pursuant to Section 140.

(e) "EPA Waste Stream Code" means the identification number assigned pursuant to the regulations of the U.S. Environmental Protection Agency to specific types of hazardous waste.

(f) "Hazardous material" means any hazardous substance or hazardous waste as defined in subdivisions (g) or (h) this Section, or any material designated pursuant to Section 120.

(g) "Hazardous substance" means any substance or product:

(1) for which the manufacturer or producer is required to prepare an MSDS for the substance or product pursuant to the Hazardous Substances Information and Training Act (commencing with Section 6360, Chapter 2.5, Part 1 of Division 5 of the California Labor Code) or pursuant to any applicable Federal law or regulation.

(2) which is listed as a radioactive material set forth in Chapter 1, Title 10, Appendix B, maintained and updated by the Nuclear Regulatory Commission.

(h) "Hazardous waste" means hazardous or extremely hazardous waste as defined by Sections 25115 and 25117 of the California Health and Safety Code and set forth in Sections 66680 and 66685 of Title 22 of the California Administrative Code.

(i) "Handle" means to generate, treat, store, or dispose of a hazardous waste in any fashion.

(j) "MSDS" means a Material Safety Data Sheet prepared pursuant to Section 6390 of the California Labor Code or pursuant to the regulations of the Occupational Safety and Health Administration of the U.S. Department of Labor.

(k) "Person" means an individual, trust, firm, joint stock company, corporation, partnership, association, city, county, district, and the state, or any department or agency thereof.

(l) "Release" means any spilling, leaking, pumping, pouring, emitting, emptying, discharging, injecting, escaping, leaching, dumping, or disposing into the environment.

(m) "SIC code" means the identification number assigned by the Standard Industrial Classification code to specific types of businesses.

(n) "Use" includes the handling, processing, or storage of a hazardous substance.

(o) "User" means any person who uses a hazardous substance or handles a hazardous waste.

Section 120. Designation of a Hazardous Material.

(a) A material may be added to the list of hazardous materials set forth in Section 110 upon a finding by the County health officer that it satisfies the following criteria: the material, because of its quantity, concentration, or physical or chemical characteristics, poses a significant present or potential hazard to human health and safety or to the environment if released into the community.

(b) A material added to the list of hazardous materials pursuant to subdivision (a) shall be designated as either a hazardous substance or hazardous waste by the County health officer.

Section 130. Filing of a Hazardous Substance Disclosure Form.

(a) Any person who uses or handles a hazardous material must annually submit a completed disclosure form to the Office of Business Licenses (or the appropriate County agency designated by the County Board of Supervisors).

(b) A person operating a County licensed business shall submit a completed disclosure form with his or her annual renewal of the County business license as a condition of renewal.

(c) A person not operating a County licensed business and using a hazardous substance shall submit a completed disclosure form by September 1 of each year.

(d) Within 15 days of any:

- (1) new use or handling of a hazardous material;
- (2) change of business address;
- (3) change of business ownership; or,
- (4) change of business name;

the user shall submit a disclosure form detailing the new use or handling or other appropriate information.

Section 131.

(a) Upon receipt of a disclosure form, the Office of Business Licenses shall ensure that the name and address on the form are correct and shall forward the disclosure form to the County health officer.

(b) The County health officer shall maintain files of all disclosure forms received. These files shall be open to the public during normal business hours. The disclosure forms shall be filed by street address and parcel number and cross referenced by the SIC #(s) and the CAS #(s) or EPA waste stream codes listed on the disclosure form.

Section 140. Content of the Disclosure Form.

(a) The disclosure form shall be prepared by the County health officer with the assistance of fire personnel, planning department personnel, and other interested parties. The disclosure form shall include, but not be limited to, requests for the following:

(1) A copy of the MSDS for every hazardous substance used by the person completing the disclosure form.

(2) A listing of the chemical name, any common names, and the CAS number of every hazardous substance used by the person completing the disclosure form.

(3) The EPA waste stream code of every hazardous waste handled by the person completing the disclosure form.

(4) The maximum amount of all hazardous materials disclosed in subsections (2) & (3) which are stored at any one time by the user over the course of the year.

(5) Sufficient information on how and where the hazardous materials disclosed in subsections (2) & (3) are stored by the user to allow fire and safety personnel to prepare adequate emergency responses to potential releases of the hazardous materials.

(6) Sufficient information on any releases of the hazardous materials disclosed in subsections (2) & (3) into the air, water, sewers, or land to permit the community to understand the sources and content of hazardous material releases.

(7) The SIC code of the business, if applicable.

(8) The name and phone number of the person representing the business and able to assist emergency personnel in the event of an emergency involving the business during non-business hours.

(b) Upon request, all users must provide information beyond that specifically requested in the disclosure form to any local agency, if

that local agency has determined that such information is necessary to protect health and safety or the environment. Such additional information shall be subject to the trade secret provisions of Section 180.

Section 150. Exemptions to Disclosure

(a) A substance designated as a hazardous substance by this chapter solely by its presence on the Nuclear Regulatory Commission list of radioactive materials, shall be exempt from the requirement that a MSDS be submitted with the disclosure form.

(b) Hazardous substances contained solely in consumer products packaged for distribution to, and use by, the general public shall be exempt from disclosure under this chapter.

(c) Any person using or handling less than 500 pounds or 55 gallons a month, whichever is the lesser, of a hazardous material shall be exempted from the requirement of disclosure of that use or handling unless the County health officer has provided notice that he or she has lowered the weight or volume limits of this exemption for a specific hazardous material in response to public health concerns.

Section 160. Fees.

(a) Within two months of the passage of this ordinance, the County health officer shall prepare a report for the County Board of Supervisors describing the anticipated County cost of receiving, maintaining, and making available to other County agencies and County residents the information covered by this Hazardous Material Disclosure ordinance. The report shall include the estimated cost to the County health officer of obtaining from a manufacturer or producer of a hazardous substance a MSDS in the event that a user fails to supply the appropriate MSDS with the disclosure form.

(b) Upon receipt of the report and comment from interested parties, the County Board of Supervisors will establish a schedule of fees to be paid by persons using or handling hazardous materials which is sufficient to cover the costs to the County of administering this ordinance.

Section 170. Enforcement

(a) Any person who negligently violates any provision of Section 130 shall be civilly liable to the County in a sum not to exceed \$250.00 per day for each day in which such violation occurs, depending upon the seriousness of the violation; may have his or her County business license revoked; and, if such violations result in an emergency, including a fire, to which the County must respond, that person may be assessed the full cost of the County's response, as well as the cost of cleaning up and disposing of such hazardous materials.

(b) Any person who intentionally violates any provision of

Section 130 shall be civilly liable to the County in a sum not less than \$500.00 or more than \$5,000.00 for each day in which such violation occurs, depending upon the seriousness of the violation; shall have his or her County business license revoked; and, if such violation results in an emergency, including a fire, that person shall be assessed the full cost of the County's response, as well as the cost of cleaning up and disposing of such hazardous materials.

(c) The County may petition the Superior Court pursuant to Government Code 54740 to impose, assess and recover such sums. The remedy provided in this section is cumulative and not exclusive, and shall be in addition to any other appropriate penalty provisions of this Code and all other remedies available to the County.

Section 180. Trade Secrets

(a) If a user believes that a request for information made by either the disclosure form or pursuant to subdivision (b) of Section 140 involves the release of a trade secret, the user shall provide substantiation of the claim of trade secrecy and shall submit the information requested to the County health officer.

(b) The County health officer shall protect from disclosure any and all trade secrets coming into his or her possession, as defined in subdivision (d) of Section 6254.7 of the California Government Code and Section 1060 of the Evidence Code, when requested in writing by the user.

(c) Any information reported to or otherwise obtained by the County health officer, or any of his representatives or employees, which is exempt from disclosure pursuant to subdivision (b), shall not be disclosed to anyone except an officer or employee of the County, the State of California, or the United States of America, in connection with the official duties of such officer or employee under any law for the protection of health, or to contractors with the County and their employees if in the opinion of the County health officer such disclosure is necessary and required for the satisfactory performance of a contract for performance of work.

(d) For the purposes of this Section, fire and emergency response personnel and county health personnel operating within the jurisdiction of the County shall be considered employees of the County.

(e) Any officer or employee of the County or former officer or employee, who by virtue of such employment or official position has obtained possession of or has access to information the disclosure of which is prohibited by this section, and who knowing that disclosure of the information is prohibited, knowingly and willfully discloses the information in any manner to any person not entitled to receive it, shall be guilty of a misdemeanor. Any contractor with the County and any employee of such contractor, who has been furnished information as authorized by this section, shall be considered to be an employee of the County for purposes of this section.

(f) Information certified by appropriate officials of the United States, as necessarily kept secret for national defense purposes, shall be accorded the full protections against disclosure as specified by such official or in accordance with the laws of the United States.

(g) (1) The County health officer (or the appropriate County official designated by the County Board of Supervisors), upon his or her own initiative or upon receipt of a request for the release of information submitted and substantiated as a trade secret by a user, shall determine whether any or all of the information so submitted is properly designated trade secret.

(2) If the County health officer determines that the information is not a trade secret, the County health officer shall notify the user by certified mail.

(3) The user shall have 15 days after receipt of notification to request reconsideration of the County health officer's determination and provide the County health officer with any further data supporting the claim of trade secrecy privilege.

(4) The County health officer shall determine whether such information is protected as a trade secret within 15 days after receipt of the additional data supporting the claim of trade secrecy or, if no additional data is submitted, within 30 days of the original notice. The County health officer shall notify the user and any party who has requested the information of that determination by certified mail. If the County health officer determines that the information is not protected as a trade secret, the final notice shall also specify a date, not sooner than 15 days after the date of mailing of the final notice, when the information shall be made available to the public.

(5) Prior to the date specified in the final notice, a user may institute an action in an appropriate superior court for a declaratory judgment as to whether such information is subject to protection under subdivision (a).

(h) The provisions of this section shall not permit a user to refuse to disclose information required pursuant to this chapter to the County health officer.

Section 190. Effective Date

This chapter shall take effect 90 days after its passage.

Section 200. Severability

If any section, subsection, sentence, clause, or phrase of this ordinance is for any reason held to be invalid or unconstitutional by a decision of any court of competent jurisdiction, such decision shall not affect the validity of the remaining portions of the ordinance. The County Board of Supervisors hereby declares that it would have

passed this ordinance and each and every section, subsection, sentence, clause, or phrase not declared invalid or unconstitutional without regard to whether any portion of the ordinance would be subsequently declared invalid or unconstitutional.

APPENDIX B

CRITERIA FOR EVALUATING LOCAL PLANS

This proposed Table of Contents is based primarily on review of local response plans and a guidebook recently issued by the Federal Emergency Management Agency, Planning Guide and Checklist for Hazardous Materials Contingency Plans, July 1981. Optional elements of the plan are listed inside parentheses.

The format divides the plan into three major sections. The first section would be a very brief action plan (possibly separable from the rest of the plan) with the most essential information for emergency response. The body of the plan, focusing on actual spill response operations, would follow. Any detailed or lengthy material would be contained in an appendix.

I. Summary Action Plan

- A. Response Steps Checklist
- B. Emergency Response Phone/Radio Frequency Roster
- (C. Outline for Local Agency's Critical Procedures and High Risk Spots)

II. Main Plan

- A. Record of Changes/Updates
- B. Table of Contents
- C. Introduction
 - 1. Purpose
 - 2. Objectives
 - 3. Authorization
 - 4. References
 - 5. Scope
- D. Planning Factors
 - 1. Levels of Response
 - 2. Scene Management Design
 - a. System Characteristics
 - b. Operational Assumptions
- E. Agency Responsibilities
 - 1. Responsibility Matrix
 - 2. Specific Agency Responsibilities

- a. Law Enforcement
- b. Fire
- c. Highway Department/Caltrans
- d. Health and Environmental
- e. Department of Agriculture
- f. Emergency Service

3. Other Assistance

- a. State (State Agency Coordinator)
- b. Federal (On-scene Coordinator)
- c. Industry

F. Step-by-Step Concept of Operations

- 1. Activation
- 2. Notification
- 3. Immediate On-Scene Action
- 4. Scene Management/Incident Command Structure
- 5. Command Post/Staging Areas
- 6. Evaluation of Hazard
- 7. Summary of Procedures for Different Kinds of Hazards or Special Hazards (e.g., radiologic spills)
- 8. Containment/Isolation
- 9. Conditions for Evacuation
- 10. Communication (official and private, e.g., amateur radio)
- 11. Public Information
- 12. Enforcement
- 13. Volunteers
- 14. Clean-up and Recovery
- 15. Documentation Procedures and Requirements

G. Liability for Damages and Cost Recovery

(H. Preparation for Spill Response)

- (1. Training)
- (2. Drills)
- (3. Equipment Sharing or Purchases)
- (4. Mutual Aid Agreements)

I. Updating Procedures

III. Appendix

- A. Reporting Forms
- B. Technical Resources List
- C. Detailed Procedures for Unusual Spill Problems
- D. Evacuation Procedures
 - 1. Routes
 - 2. Public Notification/Emergency Broadcasting System

- E. Prevention and Risk Assessment for Local Area
- (F. Maps of Sensitive Areas/Disposal Sites)
- (G. Hazardous Materials Labeling Conventions)
- (H. Suggestions to Public Safety Agencies on Developing Standard Operation Procedures)
- I. Plan Distribution

Additionally, the following items should be noted:

- o Detailed information not directly related to immediate response should be contained in an appendix.
- o The Plan must follow State OES guidelines, which should be finalized within two to three months. There are no uniformly accepted model plans, but the Santa Clara and Caltrans plans are considered exemplary efforts.
- o The plan must be reviewed by the State OES to determine its consistency with the State plan. However, detailed evaluation is the responsibility of local governments. Drills or review of actual spill response are the best evaluation tools.

Plan Evaluation Criteria

The following questions could be used at various stages to check on the usefulness of the developing response plan. The list is obviously not exhaustive, but should provide a starting point. The questions are designed to assess the general quality, specific contents, and local acceptability of response plans.

After each broad questions, a more specific rephrasing of the question is offered to show how a particular agency could apply that criterion to its own plan. These "for example" questions are strictly for illustration and may not apply to all plans.

General Quality.

1. Is it ACCESSIBLE? Is it easy to find critical information quickly?
 - o For example, can one quickly find the phone number of a spill contractor or technical advisor?
2. Is it reasonably COMPREHENSIVE? Does it provide information on handling all incidents with any significant probability of occurrence?
 - o For example, does it include information on handling of a spill that threatens the local water supply?
3. Is it FLEXIBLE? Can it be adapted for use by different agencies?
 - o For example, can it be modified to include special procedures at a local fire department?

4. Is it TAILORED TO THE LOCALE? Has it been written with due consideration for local hazards, institutions, and capabilities?
 - o For example, does the plan include some types of local hazards risk analysis?
5. Is it COORDINATED with existing State and Federal legislation and plans?
 - o For example, does it accurately and clearly state the legal responsibility for notifying the Coast Guard or EPA?
6. Does it use EXISTING RESOURCES effectively?
 - o For example, does it acknowledge existing Fire Department Mutual Aid Systems or take advantage of local industry and university experts?

Specific Contents.

1. Does the plan INCLUDE ALL ELEMENTS in the proposed Table of Contents listed earlier? If not, are there deliberate reasons for omitting them?
 - o For example, does the local operations plan include procedures relating to the evaluation of hazards, spill containment, and evacuation, etc.?
2. Does it clearly state RESPONSIBILITIES of different agencies in different situations? In particular, will it minimize on-scene coordination problems?
 - o For example, does it give one agency responsibility for directing evacuation?
3. Does it provide guidance for dealing with DIFFERENT KINDS OF SPILLS?
 - o For example, if nuclear materials are transported through the community, does it clearly specify any special procedures for dealing with a radioactive spill?
4. Does it provide procedures on PREPARATION FOR A SPILL, as well as the actual response operations? Does it address needed equipment, training and mutual agreements?
 - o For example, if the county is geographically isolated, are provisions made for local storage of vital equipment?

5. Are there procedures for UPDATING the plan and monitoring its IMPLEMENTATION?
- o For example, if a major cleanup contractor or technical consultant moves, how will plan holders be notified of the move?

Local Support.

1. Has the plan been APPROVED by key local participants or developed with their cooperation?
- o For example, if the plan is a county-level plan, has it been approved by a County Coordinating Council, Board of Supervisors, or association of county public safety agencies?
2. Does the plan rely on LOCAL ACTIONS that are opposed or unlikely to be implemented?
- o For example, does the plan envision equipment purchases that are considered too costly by some local agencies?

State and Federal Support.

1. Has the plan been APPROVED by key State and Federal response agencies or developed with their cooperation?
- o For example, has the plan been reviewed and approved by the California Highway Patrol, Regional Water Quality Control Board and the California Department of Fish and Game?

APPENDIX C

RESPONSE EQUIPMENT FOR HAZARDOUS MATERIAL INCIDENTS

The following is a list of equipment for initial response to a hazardous material incident. Basic equipment for the first responder is recommended, as well as additional equipment to be carried on or readily accessible for specialized response vehicles.

The basis for compiling this list is that first responders are responsible for initial assessment, site control, immediate safety of response personnel and public, and notification. Much of this equipment is already carried by fire department engines, trucks or rescue vehicles. The specialized response vehicle, expected to arrive within thirty minutes, would be capable of containing most local spills and possibly cleaning up small incidents. Sophisticated analyses, major cleanup, and disposal activities would be handled by contractors with extensive specialized equipment and capabilities.

This list is not meant to serve as a mandatory list for any community. Because it is based on a composite inventory, it may be overly inclusive. Response agencies should use it to develop a more selective list for their own uses. It may also be useful in conducting inventories of available equipment.

The following equipment which is not marked by an asterisk is appropriate for first responders. Additional equipment to be carried on special response vehicles is marked with an asterisk. Where applicable, all equipment should be OSHA approved. Except for minimum recommendations on hazardous environmental suits and breathing apparatus, no further recommendations are made as to the appropriate number of equipment. This must be assessed and determined by individual jurisdictions.

RESPONSE EQUIPMENT FOR HAZARDOUS MATERIAL INCIDENTS

I. PROTECTIVE EQUIPMENT

A. Suite and Protective Clothing

Hazard Environmental Suits/Encapsulated (including Butyl Rubber and Neoprene) (4 minimum)

*Splash Apron

*Proximity Suit or Fire Entry Suit

B. Breathing Apparatus

Positive Pressure Self-Contained Breathing Apparatus (4 minimum)

*Rebreather

*Cartridge Type Respirator

*5-15 Minute Escape Mask

*Umbilical Air Supply for Cooling

C. Gloves

Neoprene/Butyl Rubber

Natural Rubber

Surgical

D. Other Protective Clothing - Normally on Fire Apparatus

Coveralls (e.g., Tyvec)

Raingear

High Visibility Vests

Goggles

Hardhats/Helmets

Boots, Polyethylene

Boots, Latex

Boots, Turnout

Shoe Covers

Respirator Hoods

Face Shields

Safety Harness

Ear Protectors

Turnout Pants/Jacket

II. LEAK CONTROL EQUIPMENT

A. Chlorine Kits - Tank Repair

Access to:

"A" Kit (100-150 lb. Cylinders)

"B" Kit (1 ton Containers)

"C" Kit (Train Car/Tank Trucks)

B. Patches/Adhesives/Fabric

- Bungs
- Drum Gaskets
- *Gasket Compounds
- *Epoxy Kits
- *Calking
- *Patches
- *Sealants

C. Tape

- Duct
- Teflon Thread
- Barricade (Street Dept.)
- *Friction
- *Electrical
- *Box Sealing/Packing
- *Masking

D. Connective Pieces

- Pipe Pieces, Union, Caps, etc.
- Wood/Rubber Plugs
- T-bolts
- Pipe Joint Clamps
- Hose and Gasoline Clamps
- *Cables and Rods
- *Screws
- *Toggle Bolts
- *Nuts and Bolts
- *Washers
- *Pipes
- *Clamps, Assorted
- *Couplings, Assorted

E. Sorbents and Containers

- Absorbent Pads
- Plug 'n' Dike Kits
- Plastic Can Liners/Bags
- Vermiculite
- *Bag Sorbent
- *Containment Boom
- *Diatomaceous Earth
- *Five Gallon Jerry Cans
- *Imbiber Beads/Blankets
- *Air Bag System (Tanks)
- *Sponges
- *Teflon Counter Cover
- *Sandbags
- *Activated Carbon
- *Ion Exchange Columns
- *Recovery Drums

F. Chemical Neutralizing Agents

Acid Neutralizing Agent
Caustic Neutralizer

G. Biological Neutralizing Agent

Clorox

III. SUPPRESSION EQUIPMENT - NORMALLY ON FIRE APPARATUS

A. Foam and Required Delivery Systems

B. Extinguishers Capable of Handling Class A, B, C and D Fires

IV. HAND TOOLS, NONSPARKING WHERE POSSIBLE

Screwdrivers

Square End
Flathead
Phillipshead

Wrenches

Hex Key/Allen
Adjustable End
Crescent
Pipe
Basin
Bung
Drum
Socket
Hammer
Open End Box
Box End
Packing Gland

Brace

Drill Set
Punch Set

Pliers

Slip Joint
Needle-Nosed
Channel Lock
Side Cutting
Vise Grip
Battery
Dike

Hammers

Ballpeen
Regular/Claw

Bolt Cutters
Wire Snippers
Putty Knife

IV. HAND TOOLS (Continued)

- Paint Brushes
- Welding Kit
- Tape Measure
- Folding Ruler
- Pipe Vise
- Files
- Wood/Metal Chisels
- Shoring Kit
- Hacksaw
- Manhole Tools
- Tin Snips
- Tongs
- Rubber Knife
- Banding Tool/Band
- Level
- Point Gauge
- Die Set
- Socket Set
- Pipe Crimping/Freezing Tools
- Spanners
- Universal Adapter (Ship Fittings)

V. CONTAINMENT/CLEANUP EQUIPMENT (EXCLUDING HAND TOOLS) Nonsparking Where Possible

- *Shovels
 - Square Point
 - Round Point
- *Pry Bars/Hooks (ns)
- *Heavy-Duty Bars (ns)
- *Pumps
 - Large or Drum
 - Hand
- *Electric Generator
- *Safety Line
- *Rope
- *Sledge Hammer (ns)
- *Brooms
 - Push
 - Sweep
- *T-Wrench
- *Lantern/Mounted Lights
- *Battery Jumper Cables
- *Hand Truck
- *Drum Bung Rent
- *Scoops
- *Scraper
- *Tarps
- *Vacuum Cleaner
- *Vacuum Microfilter
- *Exhaust Filter

V. CONTAINMENT/CLEANUP EQUIPMENT (Continued)

- *Funnel
- *Dust Pans
- *2000-lb Come-Along and Chain
- *Electric Wrench
- *Drum Sling & Straps
- *Drum Lifting/Transfer Tool
- *Drum Liners
- *Chemical Bucket (Butyl Rubber)
- *Squeegees
- *Pallet Puller
- *Access to Heavy Equipment (including bulldozers, compressors, and vacuum trucks)
- *Fencing Wire Roll
- *Roll Wind Ribbon
- *Ladder
- *Mechanical Squeeze All
- *Roll Foam Padding/Sheets
- *Jacks
 - Heavy Duty
 - Hydraulic
- *Axes
 - Fire-Fighting
 - Pick

VI. MONITORING EQUIPMENT

A. Chemical Monitoring

- Oxygen Indicators
- Hydrocarbon/Gas Detector or Explosimeter
- Gas Sampler w/Detection Tubes (e.g., Draeger)
- pH Indicators
- *Water Sample Test Kit
- Fluorescent Dyes and Ultraviolet Light
- Radiation Detector/Dosimeter
- *Sample Containers and Preservatives
- *Coolers (3-4) for Storing Samples
- *Access to Gas Chromatograph

B. Environmental Monitoring

- Taylor Anemometer
- Tracer (e.g., color smokebombs, confetti, chaff)
- Compass
- *Recording Cup and Vane Anemometer with 10 Meter Telescoping Mast

VII. MEDICAL/FIRST AID

- First Aid Kits
- Resuscitator
- Towels/Blankets
- *Eyewash Shower
- *Personnel Decontamination Kit
- *Decontamination Wading Pools

VIII. COMMUNICATION DEVICES

A. Radios

- Hand-held Portable (Walkie-Talkies) and Plastic Bag Covers
- Mobile Phone
- *Scanner
- *Access to Amateur Radio/Citizens Band

B. Other Devices

- Bullhorn/Megaphone
- *Tape/Cassette Recorder
- *Videotape Recorder

IX. RECORDING DEVICES

- Camera
- Linen Tags
- Grease Pencil
- *File Cabinet
- *Stationery
- *Blackboard
- *Clipboard
- *Lumber Crayon

X. SUPPLIES AND SUPPORT EQUIPMENT

- Hand Cleaner, Waterless
- Spare Batteries
- Bucket
- Field Glasses
- Soap, Green
- Portable Shower
- Flashlights/Handlights
- *Lubricant
- *Waxpaper
- *Plastic/Plexiglas Sheets
- *Radio Charger
- *Heater
- *Water, Light
- *Extension Cords
- *Ladder
- *Containers, Misc.
- *Calculator
- *Wooden Stakes
- *Flares, Electric
- *Reflective Triangles
- *Lantern/Emergency Lights
- *Chemical Light Sticks
- *Flash Strobe
- *Power Supply, as needed

XI. REFERENCE MATERIALS

A. Maps

- Topographic
- Pipelines (Sanitary and Storm Sewers)
- Highways
- Utilities

B. Computer Terminal/Printer

Access to Computer Data Bases Such as EPA's OHMTADS

C. Lists/Plans

- Equipment Resource List
- Emergency Phone List
- Chemical Facility Pre-Plans
- Local Contingency Plans

D. Reference Library

All responders should carry the U.S. Department of Transportation Hazardous Materials Emergency Response Guidebook and the National Fire Protection Association Fire Protection Guide on Hazardous Materials

A specialized response vehicle should carry a broader technical library, typically consisting of about a dozen books. These references can be selected from the following list.

Emergency Response to Selected Spills

U.S. Department of Transportation. Hazardous Materials Emergency Response Guidebook. Washington, D.C.: U.S. Government Printing Office, 1980, approx. 200 pages.

Bahne, Charles. Fire Officers' Guide on Dangerous Chemicals. Boston: National Fire Protection Association, 1978, 250 pages.

Chemical Manufacturers Association. Chem Cards. Washington, D.C.: CMAA, 1978.

Dean, Amy, & Keith Tower (Eds.) National Fire Protection Association Fire Protection Guide on Hazardous Materials. Boston: NFPA, 1978.

U.S. Coast Guard. CHRIS: Condensed Guide and Hazardous Chemicals Data Manual. Washington, D.C.: U.S. Government Printing Office, 1978.

Cleanup Procedures

Chemical Manufacturers Association. Laboratory Waste Disposal Manual and Safety Data Sheets. Washington, D.C. CMA.

Robinson, J.S. (ed.) Hazardous Chemical Spill Cleanup. Pollution Technology Review Series. No. 59. Park Ridge, N.J.: Noyes Data Corp., 1980.

Chemical Hazards Guides

Gosselin, R. et al. Clinical Toxicology of Commercial Products. Baltimore: Williams & Wilkins, 1976, 1810 pages.

Hatayama, H.K. et al. A Method for Determining the Compatibility of Hazardous Wastes. Springfield, VA: National Technical Information Service, 1980.

Hawley, Gessner. The Condensed Chemical Dictionary, New York: Van Nostrand Reinhold Co., 1977. 954 pages.

Meidl, James H. Explosive and Toxic Hazardous Materials. Encino, CA: Glencoe, 1970.

Meister Publishing. Farm Chemicals Handbook. Willoughby, OH: Meister Publishing Co., 1980.

National Institute of Occupational Safety and Health - Occupational Safety and Health Agency, Registry of Toxic Effects of Chemical Substances. Washington, D.C.: U.S. Government Printing Office.

National Institute of Occupational Safety and Health. Pocket Guide to Chemical Hazards. Washington, D.C.: Government Printing Office.

Proctor, Nick, and Hughes, James. Chemical Hazards of the Workplace. Philadelphia: J.B. Lippincott, 1978.

Sax, N. Irving, Dangerous Properties of Industrial Materials. New York: Van Nostrand Reinhold Co., 1978. 1118 pages.

American Society for Testing and Materials. Toxic and Hazardous Industrial Chemicals Safety Manual. Philadelphia: ASTM, no date, 580 pages.

Windholz, Martha, Merck Index. Rahway, New Jersey: Merck & Co., Inc., 1976.

Recognition of Containers/Labels

AIRCO. Cylinder Color Chart.

GATX. Tank Car Manual.

U.S. Department of Transportation. DOT Hazardous Materials Warning Labels and Placards. Charts 4 and 5. Washington, D.C.: U.S. DOT. Materials Transportation Bureau, 1977.

Medical Procedures

Dreisbach, Robert H. Handbook of Poisoning: Prevention, Diagnosis and Treatment. Los Altos, CA: Lange Medical Pub., 1980. 578 pages.

Matheson Gas Products. Toxic Gases: First Aid and Medical Treatment. East Rutherford, NJ: Matheson.

General Spills Response

Smith, Al. Managing Hazardous Substances Accidents. New York: McGraw Hill, 1981, 224 pages.

Zajic, J.E., and Himmelman, W.A., Highly Hazardous Materials Spills and Emergency Planning. New York: Marcel Dekker, Inc., 1978.

Hazardous Materials Transportation

Association of American Railroads, Bureau of Explosives. Emergency Handling of Hazardous Materials in Surface Transportation. Pamphlets 1-4. Washington, D.C.: Association of American Railroads, 1981. (for copy call [202] 293-4048)

APPENDIX D

GUIDELINES FOR THE DEVELOPMENT OF HAZMAT TEAMS SHARED USE AGREEMENTS

The following checklist has been developed to be used as a guide for agreements. While the specific terms and conditions of each agreement will have to be negotiated between the particular parties involved and their legal counsel, the issues and considerations presented are likely to be applicable to most shared use agreements and, as such, are recommended for inclusion in legal contracts for shared use of HAZMAT team resources.

In general, most agreements will cover joint use of both equipment and personnel. Since certain legal considerations will pertain only to equipment, others to personnel and some to both, the agreement should be organized in a way which clarifies these considerations. For example, sections dealing with incident command structure and communications, workers' compensation and training would only affect the HAZMAT personnel. Other sections, e.g., equipment maintenance and replacement, and materials and supplies would be applicable only to the HAZMAT equipment and materials. Finally, some areas of concern would be applicable to both personnel and equipment, e.g., description of services, compensation, liability insurance, priorities for use of teams, and traditional "boiler plate" provisions.

In light of the above comments, the suggested "checklist" items are divided here into three sections, one each affecting either personnel or equipment and materials, and one affecting both.

Equipment/Materials

Risk of Loss - The agreement should clearly designate the party at risk in the event of damage or loss of equipment (Coordinated with insurance provision.)

Equipment Maintenance/Replacement - Agreements should address issues such as who will be responsible for protecting, maintaining, replacing and/or updating the shared equipment, including specifics regarding procedures to be followed, financial responsibility of the parties, special circumstances which modify responsibility, if any, etc.

Materials and Supplies - Arrangements for purchasing, storing, utilizing and/or replacing materials and supplies (which may be specified) should be included in the agreement.

Warranties -

- (a) The agreement should clearly state whether HAZMAT provider warrants equipment and materials for their intended use.

- (b) Regardless of whether HAZMAT provider warrants equipment and materials for intended use, legal owner of the equipment and materials should be obligated to assist in enforcing warranty claims against manufacturers of materials and equipment.

Equipment Only Use - The agreement should specify whether any party has the right or power to use and operate the equipment with other than designated personnel.

Liens - The agreement should state whether the legal owner may encumber, pledge personal property as security for debt without transfer of possession, or otherwise dispose of the equipment and the condition under which all or any of the foregoing may be done.

Personnel

Designated Personnel - The agreement should identify a list (separately kept) of personnel covered by the agreement. Procedures for amending the list should be stated. If an equipment only use is allowed, a separate list of qualified operators should also be maintained.

Status - Status of personnel should be clearly stated, e.g., employees of X, independent contractors, etc.

Workers' Compensation - Workers' compensation claims by fire fighters injured responding to spills in another jurisdiction could also be a concern. Because the fire fighter's employer is always responsible for covering the claim, regardless of the location of the injury, such a claim could adversely affect the employer's workers' compensation and premiums. There is no simple legal method for transferring responsibility for workers' compensation claims. However, agreements could cover independent claims filed outside the workers' compensation system. The could also increase compensation to the jurisdiction with the team, based on the increased risk of injury to HAZMAT team members.

Training - The effectiveness of response can be increased when fire and police officers know how to work with HAZMAT team. The agreement should require recipients of outside aid to undergo training consistent with that received by HAZMAT team members. This strongly favors common training programs among jurisdictions.

Common

Services Provided - Agreements on the capabilities and duties of the HAZMAT team should prevent misunderstandings. As an example, the Oakland HAZMAT team agreement has proposed to provide identification, technical advice and containment. Spill cleanup and disposal would have to be carried out by private companies hired by the community where the incident occurred. Please note, under current state law, site access control must be the responsibility of the law enforcement agency of the jurisdiction where the spill occurs or the California Highway Patrol if the spill occurs on the highway.

Incident Command Structure and Communications - Critical organizational issues, such as lines of authority and interagency communication, should be covered in the agreement.

Priorities for Use of Teams - Agreements should address foreseeable conflicts in use of shared teams. For example, a priority scheme could be developed for the case of simultaneous hazardous material incidents in two cities sharing a team. Priority should be based on "first come--first served," on the relative hazards of the two spills, or on ad hoc decisions by fire chiefs.

Liability - As discussed in Chapter VIII, local governments may be liable for improper or insufficient response by their HAZMAT teams. Agreements should state who would be liable if a HAZMAT team causes injury or property damage responding to an incident in another jurisdiction. Some liability may not be affected by contract (see comments to "Services Provided").

A multi-city San Mateo County fire service agreement governing shared use of an air truck included a "hold harmless" clause that could also apply to team sharing: "Each party hereby agrees to hold the other party...harmless from any liability for damage or claims for property damage which may arise from the indemnifying party's performance and operations under this Agreement."

Insurance - The agreement should provide that one of the parties procure public liability insurance covering loss and damage resulting from the acts or omissions of the HAZMAT personnel or other users of the HAZMAT equipment, from the equipment and materials themselves, and any loss or damage to the equipment. Insurance can be procured from a third-party insurer or through a self-insurance fund or pool.

Compensation - Like other fire services, direct response costs are only a portion of the total costs. Overhead and indirect costs for equipment, training, and maintenance should be part of the costs recoverable under shared use agreements.

For example, the Oakland Fire Department has developed a tentative cost sharing arrangement whereby participating cities pay a \$5,000 joiner's fee and an hourly charge for actual response. The basic charge would be \$2,000 an hour, plus the cost of disposable supplies. Oakland would bill the community in which the incident occurred, and that city would in turn collect the fine from the offender and remit the money to Oakland. If a fine could not be collected within 90 days, the community would pay Oakland a "guaranty fee" of \$300 an hour, plus disposable supplies costs, and would pay the difference between the actual and guaranty charges when the fine was eventually collected.

Other Clauses - The following clauses are also commonly included in such agreements:

"Disputes" - guidelines or procedures to be followed in the settlement of disputes arising from the agreement.

"Term" - specifying the duration of the agreement, renewal options, etc.

"Notices/Demands" - procedures for giving or receiving notices or demands should be specified.

"Successors" - specifying whether the agreement binds successors, executors, administrators and assigns of the parties.

"Severability" - typically indicating that if a particular term or condition of the agreement were found to be legally invalid or unenforceable, the rest of the terms and conditions remain valid and enforceable still.

"Entire Agreement" - statement to the effect that the instrument signed constitutes the entire agreement between the parties, revoking or merging other written or oral agreements.

Counsel for the entities entering into a HAZMAT joint use agreement should be aware of several general legal concerns. If a Joint Exercise of Powers Agreement is used, California Government Code Sections 6500, et seq. should be reviewed for statutory requirements and limits on powers. Antitrust exposure of a public entity after Community Communications Co., Inc. v. City of Boulder, Colorado, has been greatly expanded. The agreement should be reviewed for potential violations.

APPENDIX E
HAZARDOUS MATERIAL INCIDENT NOTIFICATION GUIDE

8/6/82

Telephone
Number

LOCAL EMERGENCY SERVICES

Local Police Department(s)/Public Safety
Sheriff's Department(s)
Fire Department(s)
Nearest HAZMAT Unit
City
County
California Division of Forestry
Ambulance
Local Hospital(s)
County Office of Emergency Services
Public Works/City - County

(911 in localities
with this
capability)

REQUIRED NOTIFICATION

State Office of Emergency Services
(off highway)
or
California Highway Patrol
(on highway)

National Response Center
or
Area Coast Guard Office
or
Region IX - EPA

*800/852-7550

*ZE1-2000
(through operator)

*800/424-8802

*415/273-7405

*415/974-8131

COMMODITY IDENTIFICATION/INFORMATION

Shipper
Manufacturer - Carrier
CHEMTREC
Private Cleanup Contractors/Analytical Laboratories
San Francisco Poison Control Center
Health Department(s)
City
County
EPA OHMTADS

+
+
*800/424-9300
*800/792-0720

*415/974-8131

UTILITIES

Underground Service Alert
Direct Utilities
Gas
Electric
Telephone
Water Supply Agency
Sanitary District

800/642-2444

+ varies with incident
* 24-hour number

[] Appropriate State and Federal agencies should be notified by CHP/OES or the National Response Center. However, they are included here for backup purposes.

CONTAINMENT/CLEANUP

Shipper
 Manufacturer - Carrier
 Public Works
 City
 County
 [Caltrans]
 Cleanup Contractors/Cooperatives
 (See "Directory of Private Response Capabilities")
 Local Technical Advisors
 [Department of Health Services, Hazardous Material Management Section (proper disposal information)] 415/540-2043
 Class I Disposal Sites
 IT Corp. (Solano County) *415/228-5100
 IT Corp. (Contra Costa County) *415/228-5100
 Richmond Sanitary Service *415/232-5872
 Chemical Waste Management (Holister) 209/386-9711
 209/935-2043

EVACUATION

Schools
 Churches
 Bus Companies
 Red Cross

NOTIFICATION FOR SPECIFIC INCIDENTS

Threat to Water (creek, stream, storm drain, sewer system, drainage ditch, Bay, ocean)

Public Works
 [State Fish and Game] 707/944-4460
 [Regional Water Quality Control Board] 415/464-1255
 Water Supply Agency
 Sanitary District
 [Department of Health Services
 Sanitary Engineering Section
 (Drinking Water Contaminated)] 415/540-2154
 County Health Department
 [Coast Guard (Bay, Delta, ocean)] 415/273-7405
 [EPA (inland)] *415/974-8131
 [Department of Water Resources]
 (if involving State Water Project)

Industrial Site

[State Department of Industrial Relations] 415/557-1946

Public Recreation Land or Park Contaminated

City Parks Department
 Regional/County Parks Departments
 [State Fish and Game] 707/944-4460
 [State Division of Forestry]
 [National Park Service]

Biological Agent

Telephone
Number

[Federal Center for Disease Control]

*404/633-5313

Oil Spill

[State Department of Fish and Game]
[Regional Water Quality Control Board]
[Coast Guard]
[Environmental Protection Agency]
Bay Area Pipeliners Organization

707/944-4460
415/464-1255
415/556-3740
*415/974-8131
415/432-9790

Radioactive Spill Incident

State Office of Emergency Services (coordinates)
[State Department of Health, Radiological
Health Division]
Lawrence Livermore Laboratory
[Interagency Radiological Assistance Plan]

*916/391-7716
916/445-3035
415/447-6880
*415/273-4237

Pesticide or Agricultural Chemicals, Contaminated
Food or Agricultural Land

County Health Department
County Agricultural Commission

Air Pollution

[Air Resources Board]
County Health Department
[Environmental Protection Agency]
Bay Area Air Quality Management District

800/952-5588
415/974-8131
**415/771-6000

Ordnance Incidents

Nearest Major Military Bases (e.g. Concord Naval
Weapons Station or San Francisco Presidio)

VOLUNTEER DISASTER ASSISTANCE

Red Cross
Salvation Army
Civil Air Patrol
Radio Amateur Civil Emergency Service
(contacted by County OES in Alameda and Contra Costa
County)

** 24-hour number; however, calls outside of normal business hours are received by an answering service that directs calls to appropriate personnel; response is not guaranteed during this period.

NOTE: Local agencies preparing phone listings should routinely check and update all phone numbers. Local dispatchers should be trained in activation of phone lists and kept informed of all updates.

APPENDIX F
MODEL INCIDENT INFORMATION REPORT FORM

10/22/82

DATE _____ TIME _____

LOCATION (be specific)

Company or Building _____

Address _____

Street Number _____

City _____

Highway, County Road or Street Incident _____

Nearest Intersection/Off Ramp, Etc. _____

Highway, Freeway, Street Names _____

Waterway Incident (in or near) _____

Lake, Pier, Stream, Creek, Etc. _____

TYPE OF INCIDENT

Material(s) (trade name/chemical name) _____

Amount _____ Solid _____ Liquid _____ Gas _____

Identified By _____

Source (rail, ship, pipe, etc.) _____

Type/Condition of Container _____

Cause/Responsible Party _____

Railcar/Truck Number _____

Carrier (driver/company) _____

Shipper/Manufacturer _____

Consignee _____

Hazard Class:

Flammable _____

Nonflammable Gas _____

Explosive _____

Oxidizer _____

Etiologic _____

Poison _____

Corrosive _____

Unknown _____

Radioactive _____

Harmful/Deleterious _____

Markings on Vehicle or Containers (Placard/Labels, ID No.) _____

Observed Behavior of Material/Reactions _____

Health Effects of Material _____

CAUSALTIES

Number People Exposed _____ Contaminated _____

Number Injured _____ Number Dead _____

Hospital(s) Injured Taken To _____

Ambulance Crews/Hospitals Advised of Possible Contamination? _____

LOCAL CONDITIONS/ANTICIPATED MOVEMENT

Weather/Wind _____ Dispersion _____

Area and/or Water Body Endangered (drainage, groundwater) _____

Population at Risk _____

Other Hazard Exposures (fire, traffic) _____

PERSONNEL & EQUIPMENT

Scene Management _____

Personnel & Equipment On Scene _____
(detail on worksheet)

ACTIONS INITIATED

Evacuation Area _____ No. Residents _____

Time Initiated _____ Completed _____

Samples Taken by _____ Stored _____

Analyzed by _____ Photos/Diagrams by _____

Containment _____

Clean Up by/Action _____

Costs _____

Estimated Cleanup Time _____ Actual Time of Cleanup _____

DATE OF INCIDENT

DATE OF THIS REPORT

CONTRACT NO.

CONTRACTOR:

CONTRACTOR'S REPRESENTATIVE.

DESCRIPTION OF WORK PERFORMED THIS DATE:

*ALL ENTRIES TO BE MADE DURING PERFORMANCE OF WORK

ADDITIONAL INFORMATION:

DISTRIBUTION		ADDITIONAL CHARGES FOR TRAVEL TIME?		<div style="border: 1px solid black; width: 100px; height: 100px; margin: 0 auto;"></div>	<div style="border: 1px solid black; width: 100px; height: 100px; margin: 0 auto;"></div>
1	Contractor	<input type="checkbox"/> YES	<input type="checkbox"/> NO		
2	State's Field Representative				
3	District Office				
4	District Office for Headquarters				
		ADDITIONAL CHARGES FOR SUBSISTENCE?		<div style="border: 1px solid black; width: 100px; height: 100px; margin: 0 auto;"></div>	<div style="border: 1px solid black; width: 100px; height: 100px; margin: 0 auto;"></div>
		<input type="checkbox"/> YES	<input type="checkbox"/> NO		

 Authorized Representative of Contractor

 State Representative

APPENDIX 6

CITIZEN'S GUIDE TO HAZARDOUS SPILLS

If you are aware of a spill (solid, liquid or gas), be aware that it may be hazardous and take the following actions:

1. STAY AWAY FROM THE MATERIAL - assume that it is toxic:
 - o Protect yourself and others by staying as far from the material as possible, leaving the scene to report the incident as soon as you can.
 - o Stay upwind and upgrade from the spill. Remember that you may not be able to smell the material.
 - o Extinguish flame sources (e.g., cigarettes) and do not light flares.
 - o Avoid driving through the spilled material.
2. REPORT THE INCIDENT - noting exact location and other important information (e.g., type of material - solid, liquid, gas, odor, color; type of vehicle - tank trucks, flatbed, van; type of container - box, cylinder, bag; hazard identifiers - labels, placards; vehicle identifiers - license, company name, logos, numbers on vehicle), call one of the following:
 - o "911" emergency number (if available).
 - o Local police or fire departments if the incident occurs anywhere other than on the highway.

police _____ fire _____
 - o "ZE-12000" (California Highway Patrol) if the incident occurs on the highway.
3. SEEK HEALTH INFORMATION/MEDICAL ATTENTION for exposure problems or concerns:
 - o If you leave the scene before the material is identified, stay in touch with the agency notified (see #2) or the Poison Control Center. Arrange for them to inform you when the material is identified.
 - o If the identity of the material is known, call the Poison Control Center (415-666-2845) for health information and instructions.

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